AMERICAN GAS ASSOCIATION MONTHLY

SEPTEMBER · 1936

Gas at World Power Conference

•

Resuscitation Training Device

WILL C. GRANT

•

Natural Gas Engineering Course

F. V. L. PATTEN

•

Convention Offers Attractions

Fresh OFF THE PRESS

The most *Complete* and *Authoritative* Guide to

Better Kitchen and Basement Planning

THIRTEEN CHAPTERS · · · 45 PAGES
15 FULL PAGE PHOTOGRAPHS OF MODERN GAS KITCHENS

A Second Edition, new and up-to-date, of the Association's popular book "Modern Kitchens—A Handbook for Design and Construction" is now available. The first edition, published in 1933, has been used by more than 300 gas companies as a guide in solving their kitchen planning problems. Although distributed exclusively to gas companies, copies found their way into the hands of kitchen planning and equipment specialists who have stated that it constituted the most helpful and authoritative guide used in their daily work.

SYNOPSIS

1. Principles of Planning the Modern Kitchen.
2. Selection and Location of Gas Appliances.
3. Types of Other Fundamental Kitchen Equipment. (Sinks, Work-tops, Cabinets.)
4. Specialized Storage for Utensils, Linens, Supplies.
5. Smaller Accessory Equipment.
6. Wall and Floor Coverings.
7. Lighting Fixtures and Electrical Outlets
8. Decorative and "Period" Treatments for the Kitchen.
9. Use of Existing Conditions in Old Kitchens.
10. Planning the Kitchenette and Apartment Kitchen.
11. Dining Alcoves, Pantries and Laundry Space.
12. Planning the Modern Basement.
13. Storage Requirements for China and Glassware.
14. Suggestions for Organizing and Operating a Kitchen Planning Service.
15. Fifteen Full Page Photographs (in pocket) of Modern Gas Kitchens. Twelve Plans for Architects.

Copies of the Second Edition of "Modern Kitchens and Basements—A Handbook for Design and Construction" are available to member companies at the following prices:

1-10 copies..... $3.00 each
All over 10 copies..... 2.00 each

Address: **AMERICAN GAS ASSOCIATION, 420 Lexington Avenue, New York, N. Y.**

AMERICAN GAS ASSOCIATION MONTHLY

Contents for September 1936

VOL. 18 No. 8

There's Nothing Like GAS For—..... 295

Convention—Exhibition, A Double Attraction This Year..... 296

A New Device for Resuscitation Training..... 299
WILL C. GRANT

Home Economics Leaders View Cooking Display 301

The Gas Industry at the World Power Conference 302

Natural Gas Engineering Course Offered by Texas College of Arts and Industries..... 305
F. V. L. PATTEN

Putting Meter Readers in Uniform..... 307
GEORGE JAQUET

Gas Serves Texas Centennial..... 310

Hotel Del Coronado Turns to Gas..... 313
RALPH J. PHILLIPS

Chicago's Heating and Air Conditioning Show Attracts 50,000..... 314
WINFIELD FOSTER

A. G. A. Laboratories' Program Discussed at Pacific Coast Meetings..... 316

Affiliated Association Activities..... 320

Convention Calendar..... 320

The Collection Coupon as a By-Product of the Addressograph and Billing Operations.. 322
F. C. REEL

Highest Honors Go to Winners of National Gas Refrigeration Contest..... 324

Brooklyn Union Gas Co. Organizes for Commercial Sales..... 326

Going Ahead with Industrial Gas..... 327

A Gauge and Method for Determining Main Leakage 328
GEORGE E. WHITWELL

New Range and Water Heating Unit Standards Proposed..... 330
H. W. SMITH, JR.

Personnel Service..... 332

Published monthly by the American Gas Association. Publication Office, American Building, Brattleboro, Vt. Editorial Offices, 420 Lexington Avenue, New York, N. Y. Address all communications to 420 Lexington Avenue, New York, N. Y. The Association does not hold itself responsible for statements and opinions contained in papers and discussions appearing herein. Entered as Second Class Matter at the Post Office at Brattleboro, Vermont, February 10th, 1922, under the Act of March 3, 1879.

SUBSCRIPTION RATE : $3.00 A YEAR

The second national gas advertisement in the Saturday Evening Post series will appear October 6, featuring the above illustration in four colors

AMERICAN GAS
ASSOCIATION
MONTHLY

James M. Beall, Editor

The second national gas advertisement in the Saturday Evening Post series will appear October 6, featuring the above illustration in four colors

There's Nothing Like GAS For—

WITH the September issues of national magazines off the press, striking full-page, four-color advertisements bearing the above title and strong gas copy have gone into the homes of thousands of Americans, gas users and non-users alike. It is inconceivable but that this copy, repeated and amplified from month to month throughout the year and backed up by local gas company advertising, will have a tremendous influence on the general public. How great that influence will be depends largely on the extent to which local companies identify themselves with the national campaign. They must bring home to their local residents the fact that the gas industry means the local gas company and not an abstract generality with which they are not particularly concerned.

There has already been made available to participating companies a portfolio containing material which can be utilized by local companies in their advertising and which will tie them up directly with the national effort. It cannot be too strongly stated that the success of the program depends upon local support. Henry Obermeyer, chairman of the Publicity and Advertising Committee, recently stated: "I hope that no gas company, in pledging participation and support of this program, has been so foolish or shortsighted as to imagine that their financial contribution is all that is necessary to make the campaign a success from their own purely selfish point of view. . . . . The companies who are going to get a tremendous lot of benefit from national advertising . . . . are the companies who understand the significance of such a program sufficiently to make it work for them in their own territories."

That the first advertisements of the campaign have been effective is amply borne out by results to date. The initial advertisement had barely made its appearance when a flood of requests for the free recipe booklet—"Controlled Cooking"—was received at Association headquarters. The first response has been more than gratifying. The portfolio of suggested tie-in material for use by participating companies has been favorably received. The photographs of new kitchen set-ups, the mats and plates of standard elements appearing in the national ads and the penny folders have been the most popular items offered. In addition, more than 100,000 proofs of the first woman's magazine have been ordered. Distribution of these proofs will be made direct to selected lists of customers. Publicity material issued to newspapers, magazines and radio stations is getting a good reception. The Mystery Chef, in each of his broadcasts, makes special mention of the program.

As the program is getting under way, additional companies with several hundred thousand meters in operation have joined the movement, indicating an increasing interest in this historic undertaking.

Watch for the next advertisements. The schedule of appearances for September and October in general and women's magazines is as follows: September 8, Saturday Evening Post; September 10, Ladies' Home Journal; September 15, Woman's Home Companion; October 6, Saturday Evening Post; and October 10, McCall's. Following is the appearance schedule in professional and trade papers: September 1, Architectural Forum, American Builder and Building Age and Domestic Engineering; October 1, Architectural Forum, American Builder and Building Age and Plumbing and Heating Trade Journal. Other magazines are carrying copy directed to the industrial and commercial fields.

The model all-gas kitchen illustrated on the opposite page has the following unique color scheme:

Walls—chocolate brown

Floor—brown and white mottled linoleum with orange feature strip

Cabinets—white

Sink-top and work-tops—brown pressed wood with stainless steel binding

Range—white

Refrigerator—white

Curtains—brown, white and orange striped linen

Accessories—orange, green, white

Convention—Exhibition, A Double Attraction This Year

THE combined incentives of a national advertising campaign, a superlative exhibition of gas appliances and equipment, and a distinct evidence of improvement in the gas industry, bids fair to make the forthcoming annual convention of the Association at Atlantic City, N. J., October 26-30, the liveliest and most important in years. Plans are rapidly being formulated by the many interests directing their efforts toward making this the best convention ever.

Under the leadership of L. B. Denning, president, Lone Star Gas Company, and president of the Association, this year's meeting is expected to bring the industry even closer together in combatting the common problems facing it. The past year has seen many cooperative activities bear fruit, but it is the considered judgment of many that a new peak in cooperation will be reached in the gas industry in the coming year. The annual convention will give expression to these views and show the definite trend of the industry.

Some of the foremost utility leaders have already accepted assignments on the general sessions program. Speakers from outside the industry have been accepted for topics with wide appeal for all. Research, national advertising, economics, sales, personnel management, an overall natural gas picture, are the high lights worked out by the General Sessions Program Committee, under the chairmanship of Ernest R. Acker, president of the Central Hudson Gas and Electric Corporation. The October issue of THE MONTHLY will give details of the programs of general and sectional meetings and of entertainment features.

Great Exhibition Planned

Long a major attraction at the conventions, this year's exhibition of gas appliances and equipment under the direction of the Association of Gas Appliance and Equipment Manufacturers should outstrip all others. With 92 per cent of all available exhibition space in the giant municipal auditorium already reserved by scores of nationally known manufacturers, and many new developments since the last great exhibition two years ago, the success of this year's show is a foregone conclusion.

The manufacturers have demonstrated in the past their ability and purpose to develop appliances and equipment for public use unsurpassed anywhere in efficiency and beauty. With a great replacement market awaiting them and a national advertising campaign to create public acceptance of gas fuel, they are eager to show the advances in their products which have been brought about by painstaking research and development.

Noteworthy progress in the various research projects of the Natural Gas Department will be reported at the session devoted to the particular problems of the natural gas industry. This session will follow up on activities presented at the successful convention of the department last May in Dallas and will include subjects which were not discussed at that meeting. Many of the sectional programs have been prepared with particular reference to the natural gas man's point of view and there are numerous important papers bearing directly on his problems.

Municipal Auditorium, Atlantic City

Advertising Forum

A luncheon forum on the gas industry's National Advertising Program will be held at the Ambassador Hotel on Thursday noon. The main purpose of this get-together is to enable all who are interested in the National Advertising Program to discuss it informally from every angle and to suggest ways and means whereby the program may be made most effective.

T. J. Strickler, of Kansas City, chairman of the Committee to Conduct National Advertising, will direct the meeting. Henry Obermeyer, of New York, chairman of the Publicity and Advertising Committee, and D. D. Parry, of Poughkeepsie, N. Y., president of the Public Utilities Advertising Association, will contribute short talks on subjects of special interest to gas

men employed in the sales and advertising departments. The meeting will break up early enough so that those who wish may attend sectional meetings.

The first session of the Commercial Section will take place Tuesday afternoon. This meeting will be novel in that the program is especially designed to be of interest and help to executives in charge of sales policies and administration. The topics to be discussed will include: The Effect of Promotional Rates on New Business, Long Term Financing Plans and Results, Capitalizing Locally on the National Advertising Program and Appliance Performance Characteristics Demanded by Present Day Competition. Each of these topics will be handled by a well-known gas company executive.

Prize Award Session

Another novel feature of the Commercial Section's meetings will be the Prize Presentation Session to be held on Wednesday afternoon. At this time the ranking prize winners in the three national sales contests on ranges, refrigerators and water heaters will receive their prize awards. The session will be short—one and one half hours—in order that those present may have the opportunity to inspect fully the exhibit of gas appliances and equipment during the remainder of the afternoon.

The Commercial Section meeting on Thursday afternoon will be devoted to selling methods, including such subjects as: Plans and Methods of Getting the New Home Market, House Heating Progress During 1936, Gas Refrigeration, and The Broader Viewpoint of Home Service. Outstanding leaders in the field of gas appliance sales will cover these subjects.

A Home Service Breakfast on Wednesday will high spot home service interests at the convention. The program will consist of a group of two-minute talks by home service directors describing activities under way. This breakfast has grown in popularity each year and normally attracts many company executives and sales managers as well as home service women. There will also be a home service meeting Tuesday afternoon and an address on this subject at the Thursday meeting of the Commercial Section by E. M. Tharp, vice-president, The Ohio Fuel Gas Company.

Exhibition of gas appliances and equipment, Atlantic City, 1934

Industrial Program

One of the most comprehensive programs ever prepared to cover the commercial and industrial fields has been completed by the Industrial Gas Section for presentation Tuesday, Wednesday and Thursday afternoons. This program reflects to a large degree the return of normal business activity in many industries and the resultant increased use of gas for industrial and commercial purposes. A sharp upturn in sales of industrial gas and certain revolutionary changes in gas-burning equipment have provided a wealth of material for discussion at the convention sessions.

Some of the subjects to be presented at these sessions are: "Combustion Controls for Gas-Fired Boilers," "Practical Methods of Buildings the Commercial Cooking Load by the Use of Diversified Appliances," "What Factors Should Govern the Decision of Gas Companies in Purchasing or Building Industrial Gas Equipment," and "Engineering Improvements in Industrial Gas Apparatus and Their Economic Effect." There will also be papers covering commercial and industrial sales methods and a recapitulation of the progress made in applying gas air conditioning to industrial plants.

A feature of the industrial sessions will be the Industrial Gas Club Luncheon Wednesday afternoon at 12:30 at the Ambassador Hotel. The principal speaker at this session will be Frank C. Smith, president, Houston Natural Gas Company, Houston, Texas. Mr. Smith will speak on "What Industrial Gas Means to the Balance Sheet."

Accountants will find a bang-up program arranged for them. The general meetings of the Accounting Section will take place on Tuesday and Thursday afternoons. The series of luncheon conferences which have proved so successful during the last few years will be held on Wednesday, October 28, at the Ritz-Carlton Hotel.

Readers of THE MONTHLY *are doubtless familiar with the above figure by now, or they shortly will be. It will appear on a series of mailing pieces describing the forthcoming convention and exhibition*

Noted for their lively and interesting discussions, the accountants will undoubtedly live up to past performances. A great deal of thoughtful consideration has been given to the preparation of this year's program so that it would appeal not only to accountants, customer relations men, personnel and general executives of large and small companies alike, but also be equally interesting and instructive to representatives of both manufactured and natural gas companies. Some of the foremost utility accountants in the nation have taken part in the preparation of the various reports which will be presented.

Technical Meetings

Two afternoon sessions of the Technical Section will be held, one on Tuesday afternoon and the other on Thursday afternoon. No session will be held on Wednesday afternoon in order to give the engineers an opportunity to go through the exhibits.

Tuesday afternoon's program has been planned to be of interest particularly to the distribution engineer. Dr. Scott Ewing, our Research Associate at the Bureau of Standards, will give a complete report on the progress during the year in its research on pipe coatings. This will include not only the result of his field tests but the latest development in laboratory tests of coatings.

There has been received at Headquarters manuscript of a paper by H. K. Seeley, Syracuse Lighting Company, Syracuse, N. Y., on "The Syracuse Power Mixer." The paper tells the reasons why the machine was designed and built and gives a somewhat detailed description of the installation supplemented with lantern slides of various views of the mixer, and considerable operating data collected during the three years it has been in operation.

Great interest, in so far as service is concerned, is expected to be shown in the paper by K. K. Berlyn on "Radio Control of Emergency Crews." The idea of the principle of this paper was brought out poignantly in the conditions created by the recent flood where all sources of communication were disrupted.

The Thursday afternoon session will be devoted to subjects primarily of interest to the production engineer and the chemist. An important paper has been promised on "The Removal of Sulfur, Particularly Organic Sulfur, from Gas at Elevated Temperatures" by Professor Wilbert J. Huff and Professor Lloyd Logan, Johns Hopkins University, Baltimore, Maryland. This paper treats with the study made in the Department of Gas Engineering and covers two processes of importance. One process is designed to remove organic sulfur only, and is applied to the reheated, clean, purified gas. The second process of study can be applied to certain hot unpurified gases before cooling and tar removal. The paper will summarize results obtained, the operating problems encountered, and the future possibilities.

"The Economics of Oil Refining by the Gas Industry" will be discussed by D. W. Wilson, The M. W. Kellogg Company, Jersey City, N. J. This paper has been secured as a result of plant problems involved in the increasing degradation of the raw materials being afforded the gas industry for gas-making purposes. Mr. Wilson will give a new point of view on the problem that has been intriguing gas production engineers during the last five years.

Relating to this problem will be a paper by H. G. Terzian of The United Engineers and Constructors, Inc., entitled "Method of Determining the Relation of Generator Fuel, Oil and Tar in the Evaluation of Heavy Oil for Carburetted Water Gas."

Other program items will be of an equally high caliber, but a definite description must await further information.

Following is a list of companies who have reserved exhibition space to date:

List of Exhibitors

A.-B. Stoves, Incorporated, Addressograph-Multigraph Company, Air Reduction Sales Company, Alpha Lux Company, American Brass Company, American Cast Iron Pipe Company, American Gas Association Testing Laboratory, American Gas Journal, American Gas Products Corporation, American Meter Company, American Stove Company, American Thermometer Company, Barber Gas Burner Company, Bartlett-Hayward Company, Bastian Morely Company, Blodgett Company, G. S., Bristol Company, Bryant Heater Company, The, Burdett Manufacturing Company, Burroughs Adding Machine Company, Caloric Stove Works, Canadian Gas Association, Carson-Cadillac Corporation, Chace Company, W. M., Chaplin-Fulton Manufacturing Company, Cleveland Gas Meter Company, Cleveland Heater Company, Cleveland Trencher Company, Condensation Engineering Company, Connelly Iron Sponge & Governor Company, Crane Company, Cribben & Sexton Company, Cruse-Kemper Company, Cutler-Hammer Incorporated, Davey Compressor Company, Dearborn Chemical Company, Detroit Lubricator Company, Detroit-Michigan Stove Company, Detroit Vapor Stove Company, Dictograph Products Company, Dresser Manufacturing Company, S. R., Eastern Foundry Company, Economy Governor Company, Estate Stove Company, Fisher Governor Company, Floyd Wells Company, Forest City Foundries Company, Foxboro Company, Gas Purifying Materials Company, General Electric Company, General Gas Light Company, Glenwood Range Company, Globe American Corporation, Handley-Brown Heater Company, Hardwick Stove Company, Harper-Wyman Manufacturing Company, Homestead Heater Company, Hotstream Heater Company, Inner-Tite Clamp Corporation, International Business Machines Corporation, International Nickel Company, Johns-Manville Sales Corporation, Koppers Construction Company, Lambert Meter Company, Lattimer-Stevens Company, Lavino & Company, E. J., Lovekin Water Heater Company, Lux Clock Manufacturing Company, Majestic Manufacturing Company, McWane Cast Iron Pipe Company, Mercoid Corporation, Merco-Nordstrom Valve Company, Milwaukee Gas Specialty Company, Mine Safety Appliances Company, Minneapolis-Honeywell Regulator Company, Monroe Calculating Machine Company, Mueller Company, Mueller Furnace Company, L. J., Mulcare Engineering Company, Incorporated, Morse, Lockhart & Morse, National Cash Register Company, National Lock Company, National Machine Works, National Radiator Company, National Superior Company, Norge Division-Borg-Warner Corporation, Patrol Valve Company, Peerless Manufacturing Company, Pennsylvania Furnace & Iron Company, Perfex Controls Company, Pittsburgh Coal Company, Pittsburgh Equitable Meter Company, Pittsburg Water Heater Corporation, Radiant Equipment Corporation, Remington-Rand, Incorporated, Republic Steel Corporation, Reynolds Gas Regulator Company, Ridge Tool Company, Robbins Publishing Company, Roberts Brass Manufacturing Company, Roberts-Gordon Appliance Company, Roberts & Mander Stove Company, Robertshaw Thermostat Company, Roots-Connersville Blower Company, Roper Corporation, George D., Ruud Manufacturing Company, Safety Gas Main Stopper Company, Schoenberger Company, W. J., Semet-Solvay Engineering Company, Servel, Incorporated, Skinner Company, M. B., Smith Manufacturing Company, A. P., Spencer Thermostat Company, Sprague Meter Company, Standard Gas Equipment Corporation, Superior Meter Company, Surface Com-

(Continued on page 331)

A New Device for Resuscitation Training

By WILL C. GRANT

Lone Star Gas System, Dallas, Texas

AN apparatus developed to record results obtained in training persons in the use of the prone pressure method of artificial resuscitation in order that the one applying the method may perfect his technique has been designed and built by C. I. Langdon, of the Lone Star Gas System Advertising Department, Dallas, Texas.

The application of the prone pressure method has always been accompanied by a certain element of uncertainty in technique. Different subjects require different degrees of pressure to restore them to consciousness. This is due to a difference in physique and their condition at the time of unconsciousness. In case of a person electrocuted, the muscles have a tendency to stiffen while with a drowned person the muscles are relaxed. A child requires less weight and pressure than an adult, a woman perhaps less than a man. The operator, however, has heretofore had no scientific means of determining just what pressure to apply and what results he was obtaining during the training period.

Visible Record

By means of Mr. Langdon's device, the weight pressure exerted on the subject, the air volume and timing are recorded simultaneously upon a single chart, held in such a position that it can be observed conveniently by the operator. This chart informs him continuously during the operation of the results he is achieving.

The apparatus is believed to be invaluable in developing proper technique in the prone pressure method in that it records the action of the operator. If his technique is wrong, for instance, if his hands are not in the proper position—too close to the spine, too high on the ribs, too low down on the hips—the weight recorded is liable to be too heavy without forcing out a proper volume of air. This shows the operator that in some manner his technique is wrong. He can change his hands on his following cycles until he has found the proper spot for his hands by watching the results on his chart. When the correct technique is applied, a definite volume of air, for instance, 500 cubic centimeters, can be produced on the average subject with not more than 25 pounds' pressure. In other words, a minimum of pressure for the correct duration of time to get the desired volume of air is recorded when the technique is correct.

Description of Apparatus

The device consists of a platform constructed to register the weight applied to the subject's body, a mask to trap the air forced from the subject's lungs when pressure is applied, a tube through which the air travels to a spirometer where the volume of air is measured, and a chart on which air volume and weight pressure are recorded. The chart is calibrated in cubic centimeter volume for the air and in pounds for weight measurements. It is also calibrated in minutes to record the timing, and is propelled by a clock of proper gearing.

The accompanying chart is one made on the machine, by application of the prone pressure method of artificial respiration.

Starting from the inside line of the chart, the circular lines represent calibrations of cubic centimeters of air. Each line marks off 40 c. c.s and the group is calibrated up to 1,200 c. c.s. The blank space which follows is only a divider between the air calibration and the weight calibration, which is shown by the outer group of circular lines. The first line of the outer group is the zero or starting point for measurement of weight applied to the subject's body by the operator. Each line marks off 5 pounds and the group is calibrated up to 75 pounds pressure. The sectional division of the chart from 1 to 24, shown at the outside edge of the circle, represents minutes and each minute is divided into 15 second sections.

Each curve on the air calibration has a corresponding curve on the weight

At the left C. I. Langdon, Lone Star Gas System, Dallas, Texas, is explaining to J. W. West, Jr., secretary of A.G.A. Accident Prevention Committee, the operation of his device for visibly recording results of application of the prone pressure method of resuscitation

calibration, showing definitely the results produced by each application, including the weight applied to the body, the volume of air produced, and the time consumed.

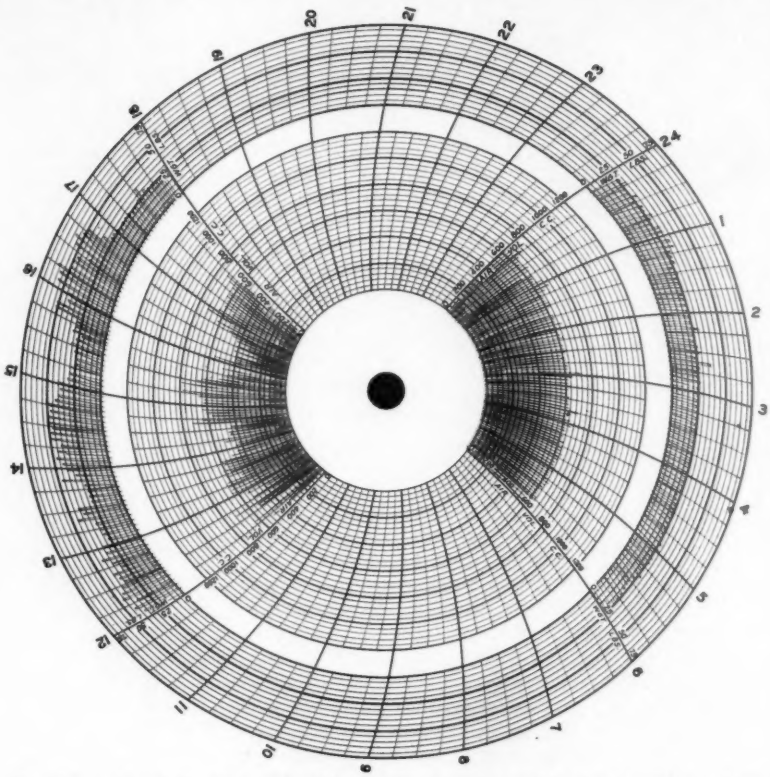
"The object in artificial respiration, as I see it," Mr. Langdon said in explaining his device, "is to produce an adequate volume and even flow of air into the lungs, using as little weight pressure as possible to produce this volume, with the impulses or cycles of operation spaced evenly at the proper rhythm.

"The section of the chart from 1 to 6 represents six minutes of artificial respiration with the operator striving to produce 600 c. c.s of air twenty-five times a minute, by applying 25 pounds pressure. To do this, the proper technique had to be applied at each cycle. Had the hands been placed improperly or the subject's body position been out of form, one or both of the calibrations would have varied. This variation could be noticed at once as may be seen in the sections from 12 to 18.

Chart Shows Errors

"This latter section of the chart was purposely made irregular by improper technique. In the section 12 to 13 the operator's hands were placed high on the subject's ribs. Exertion of 30 to 40 pounds pressure thus produced a great variation in the air recording. During the next minute all but four or five cycles were properly applied. But in the third minute, 14 to 15, the hands were placed close to the subject's spine, and excessive weight pressure and a drop in air volume resulted. Technique during the next minute, 15 to 16, was nearly correct through the first half, then the hands were lowered nearly to the subject's hips, and the results for the next minute and forty-five seconds were very bad. The weight applied ran as high as 60 pounds but produced only 240 to 400 c. c.s of air for the entire period.

"The object of the chart is to inform the first aider when his technique is correct or faulty at the moment it is applied so he may be able to determine when he is obtaining the desired results. It also shows him when he errs and what happens when a correction of his technique is attempted."



Air volume, the weight which produced it, and the time consumed by the operation are shown on the above chart made on C. I. Langdon's new device for visibly recording results of the prone pressure method of artificial respiration. Time is indicated at the outer edge of the chart by minute periods, each minute division being broken into 15 second segments by lines leading from the center to the outside of the chart. Weight pressure is shown by the outer group of circular lines, each line marking off five pounds of pressure. Air volume is shown by the inner group of circular lines, each line marking off 40 cubic centimeters of air. Two separate operations are shown by this chart, the graph from 1 to 6 representing a perfect application of the prone pressure method, while that from 12 to 18 shows the wide variance resulting from improper technique

First aid instructors and experienced laymen, including city and government safety directors as well as safety directors of several industries, have tested the apparatus and found it to be of definite value in first aid training work.

In perfecting his device, Mr. Langdon used it in many test demonstrations performed on conscious subjects. He was not, however, entirely satisfied with the accuracy of these tests, which were impaired by the subject's eagerness to assist the first aider to do a good job. Quite often the conscious person would exhale a large volume of air before pressure was applied. When told this condition existed, the subject would relax and the test could proceed more accurately, but Mr. Langdon desired to determine what results could be obtained in an actual test with an unconscious person.

Accordingly, a test and chart were run with an unconscious subject under the observation of two physicians with the assistance of the Dallas Emergency Hospital. This test satisfactorily demonstrated that the respiration of a person thoroughly relaxed was accurately recorded by use of the device in a manner similar to that of a conscious subject.

Later the machine was used by the Dallas police force to instruct policemen and check their technique during first aid classes on artificial respiration. Included in interesting comment made during this course was that of an officer who said: "I've been working with prone pressure for 15 years, but this is the first time I have ever really known what I was doing."

The machine was given an enthusiastic reception by first aid workers and instructors in the Lone Star and Dal-

las gas companies, and was finally submitted to the American Gas Association for their judgment and opinion by L. B. Denning, president of the Lone Star and of the Association.

In a letter to Major Alexander Forward, managing director of the A. G. A., J. W. West, Jr., secretary of the Association's Accident Prevention Committee, states:

"The Accident Prevention Committee, at its meeting on February 21, reviewed the papers and illustrations describing the resuscitation training device developed by Clarence I. Langdon of the Lone Star Gas Company, Dallas, Texas. In addition, this material was forwarded to Dr. Cecil K. Drinker for his review and comments in view of his long experience on the best methods of training employees in resuscitation technique.

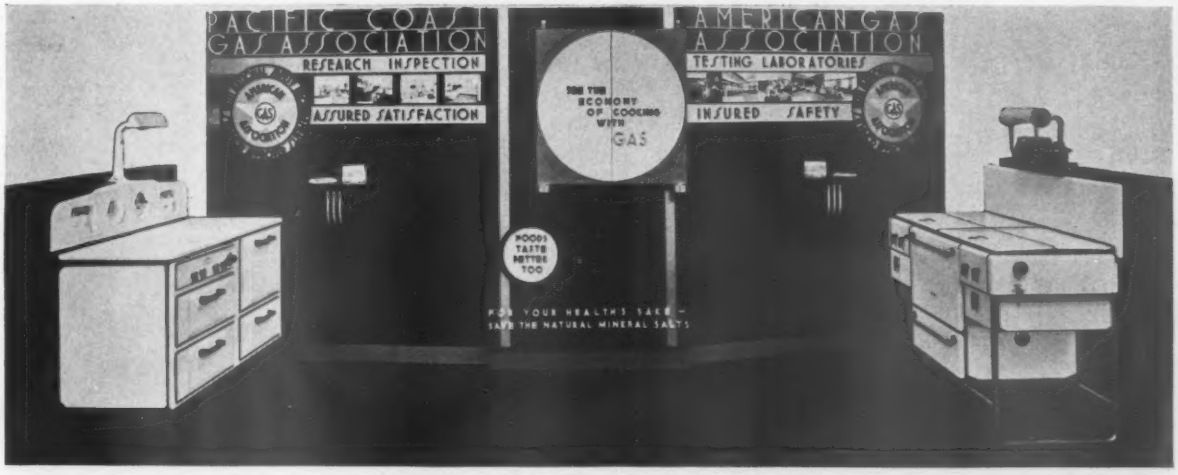
"Both the committee and Dr. Drinker feel that the device constitutes a distinct contribution to better training of employees and others in the use of the prone pressure method of resuscitation.

"While it is unquestionably true that the actual volumes of air recorded by the device on the conscious subject are not a true replica of those in the case of an asphyxiated person, it is felt that the device affords a very much better idea of the ventilation that can be obtained under the various efforts at resuscitation and unquestionably constitutes an advance in this field."

Mr. Langdon, who has been active in first aid work for several years, became aware of the need for such a device when he assisted in applying artificial resuscitation to victims of a double drowning accident. Artificial respiration was being applied by members of experienced first aid crews and Mr. Langdon took his turn with the others. As he watched the work, it seemed to him that an unusual amount of pressure was being applied to the

(Continued on page 331)

Home Economics Leaders View Animated Gas Cooking Display


PACIFIC COAST GAS ASSOCIATION
RESEARCH INSPECTION
ASSURED SATISFACTION
SEE THE ECONOMY OF COOKING WITH GAS
AMERICAN GAS ASSOCIATION
TESTING LABORATORIES
INSURED SAFETY
FOODS TASTE BETTER TOO
FOR YOUR HEALTH'S SAKE — SAVE THE NATURAL MINERAL SALTS

Cooperative exhibit at home economics convention

BY "bringing to life" in animated display vivid concepts of the economy, convenience and high quality of cooking with gas, the cooperative exhibit of the American Gas Association and Pacific Coast Gas Association at the 1936 convention of the American Home Economics Association in Seattle, Washington, July 6-9, did an unusual job of selling gas to hundreds of home economics leaders from all parts of the country. The exhibit also featured the "Assured Satisfaction" and "Insured Safety" of cooking with gas ranges approved by the American Gas Association Testing Laboratories, and included for inspection three actual models of modern gas cooking appliances.

The central attraction of the display was a moving picturization of whole meal cookery exhibited within an articulated rear wall cabinet labeled "See the economy of cooking with GAS." The cabinet opened at regular intervals disclosing a closed aluminum kettle over a modern gas burner in flame. As viewers gazed, the lid rose gently, a savory dish of pudding emerged, two dishes of vegetables followed, and finally a handsome roast with browned potatoes, onions and carrots appeared from the pot. All these items in glass containers remained suspended in spaced position above the pot for an instant before the cabinet doors reclosed. The base and rear of the enclosure were of dark blue velvet. On the inside of the cabinet doors was lettered the title of the animated feature, visible while the doors were swung wide, "The whole dinner cooking at one time over one gas flame turned low."

The Laboratory Seal of Approval of the American Gas Association flanked each of two rows of enlarged photographs depicting Laboratory testing operations and model all-gas kitchens.

To L. E. Lindsay, director of display and advertising, Seattle Gas Company, goes the credit for the construction of the exhibit. All details were under the supervision of James F. Pollard, president of the Seattle Gas Company.

A leaflet cast around the query, "Do you know . . . . ?", and emphasizing the contributions of the gas industry to the science of home-making was distributed in quantity, as was the two-color Tenth Anniversary Booklet outlining the work and progress of the Testing Laboratories program of the American gas industry. Display copies of other literature were available for inspection in connection with a registration book for ordering duplicate copies.

The Gas Industry at the World Power Conference

THE gas industry has taken a large part in the program and arrangements for the Third World Power Conference in Washington, September 7-12. Preparation of papers and of their summaries, assembling of statistical data, plans for effective participation by representatives of the gas industry from other countries, and arranging for the exhibit in connection with the conference, have involved an enormous amount of work throughout the summer at American Gas Association Headquarters and in its Laboratories.

Likewise it was no small burden the Association had to place upon the willing shoulders of its authors, department and sectional chairmen, as well as the officers of the numerous interested companies.

Beckjord To Preside

Tuesday, September 8, at 2:00 p.m., in the Commerce Auditorium the various contributions on the organization of the production, transportation and distribution of natural and manufactured gas, Paper No. 6, will be considered. The American Chairman will be Walter C. Beckjord, vice-president and general manager of the Columbia Gas & Electric Corporation, a member of our Board and past chairman of both the Technical and Commercial Sections. Mr. Beckjord will be assisted by M. August Serruys, Belgian Ministry of Public Works, as associate chairman.

Other sections are also of immediate interest to the gas industry and the Association is particularly fortunate that it will be represented throughout the duration of the conference by its official head, President Denning. Mr. Denning expects, with the aid of well-informed associates, to furnish any information on American gas practice which may be called for as a result of the discussions.

Paper No. 6 was written mainly by members of the Association who willingly contributed their time and thought. Under the leadership of F. A. Lydecker, chairman of the Technical Section, the portion of the paper on production of manufactured gas was written by L. J. Willien of Byllesby Engineering & Management Corporation. That part which relates to the transportation of natural gas was prepared by Mr. Davidson and Mr. Bussard of the Natural Gas Pipeline Company of America under the direction of its president, Floyd C. Brown. H. E. Bates of The Peoples Gas Light and Coke Company of Chicago contributed the section of the paper dealing with distribution of natural gas and manufactured gas.

A paper dealing mainly with the production of natural gas was prepared at the request of the World Power Conference by Judson C. Dickerman of the Federal Trade Commission.

Paper No. 7, "Organization of Private Electric and Gas Utilities" was covered for both industries by J. F. Fogarty, president of the North American Company.

In like manner "Public Regulation of Private Electric and Gas Utilities" was handled for both industries by John E. Zimmermann, president of The United Gas Improvement Company.

"Conservation of Petroleum and of Natural Gas," Paper No. 12, has been in the capable hands of the Bureau of Mines.

A brief paper on the gas side of "Regional Integration of Electric and Gas Utility Facilities," Paper No. 15, was contributed by the Association, with valuable suggestions from Chairman Moeller of the Natural Gas Department.

In the same manner the American Gas Association contributed the gas portions of Paper No. 16 "Ration-

British Correspondent Urges Attendance at World Power Conference

(From the London *Gas Journal*, July 22, 1936)

SIR,—May I call attention to the Third World Power Conference at Washington, U. S. A., which opens on Sept. 7, 1936? Mr. J. R. W. Alexander has given to all of us who have asked particulars of the trip, including its cost. Those of us who went to Chicago and other cities in Canada and America three years ago will never forget the education we received in many gas subjects, to say nothing of the reception given to us by those wonderful Americans.

The World Power Conference is of the greatest possible consequence to all the gas fraternity at the present time. Gas is quite cheap in many towns in America, but I do not think that the use of gas in competition with coal and other solid fuel and even oil has been exploited to that degree warranted by the facts. Many English engineers, realize—as the discussions at the 73rd Annual General Meeting of The Institution of Gas Engineers proved—where gas can be made to take its place as a fuel for steam raising and like industrial purposes as well as for domestic use. In my view it would help the Gas Industry of this country immensely to hear and discuss the subject generally at Washington.

The opportunity is not one to be missed. The cost of the trip is indeed trifling (from £110 to £160 inclusive, according to the itinerary and the length of the visit) when set against the direct commercial benefits to be derived by anyone who is responsible for the administration of a gas undertaking in this country—which means, in this connection, the preparation of coal as a fuel.

I feel very strongly on the advantages offered and sincerely hope that there will be a good response. I intend to go, who will go with me?

Yours, &c.,
GEORGE HELPS.

The Nuneaton Gas Company,
Queen's Road, Nuneaton.
July 15, 1936.

Above—Complete view of gas industry exhibit at the World Power Conference. Other pictures show sectional views

alization of Distribution of Electric Energy and of Gas." This is largely a discussion of rates based in a substantial degree on a chapter in Professor Jerome J. Morgan's book "American Gas Practice"; which chapter in fact was prepared for Dr. Morgan by the Rate Structure Committee of the Association. The rate material was reviewed and brought down to date by A. I. Phillips, chairman of the present Committee on Rate Structure.

"Power Resources, Development and Utilization," Paper No. 1, is a purely statistical summary of available data and contains only such discussions as are necessary to explain the material. Data on the gas industry were furnished in voluminous form by the Statistical Department of the Association.

At this writing delegates from the gas industry of a number of foreign countries are on their way to the United States to attend the conference. Extensive arrangements have been made for services to our foreign friends during their stay. These include registration, hotel arrangements where desired, and participation in study tours and round table discussions at various points.

15 Countries Represented

As of August 4 the American Committee of the World Power Conference announced that authorities from fifteen countries had at that time submitted papers dealing with gas and that a total of thirty-five papers had been received on gas topics, including those from the United States. Other countries from which papers relating to the gas industry had been received are: Argentina, Austria, Belgium, Canada, China, Czechoslavakia, Denmark, France, Germany, Great Britain, Holland, Hungary, Japan, Norway, Poland, Russia and Switzerland.

All papers are being pre-printed for distribution prior to the conference.

While the study tours and round table discussions cannot be definitely listed until the arrival and registration of foreign delegates who may then indicate their desires, it is planned that the gas party will visit the plants and general offices of companies in the cities of New York, Detroit, Cleveland, Pittsburgh, Philadelphia and Brooklyn. The companies have extended every form of hospitality and cooperation.

In connection with the World Power Conference an exhibit has been assembled and is now on display in Washington, in the New National Museum on Constitution Avenue. Chairman Lydecker of the Technical Section was very fortunate in securing most active and invaluable assistance from Robert A. Carter, engineer of manufacture, Consolidated Edison Company of New York who, with the assistance of Raymond M. Martin, director of display of that company, built an excellent exhibit at the company's laboratory.

The work was completed at noon August 12, shipped by truck to Washington that afternoon and set up the next day. At 3:30 the afternoon of August 13, in the presence and with enthusiastic approval of the managing director of the Association, the exhibit was completed, being signalized as one ready ahead of time for the opening date August 15.

It occupies the best position in the National Museum in the center of the main hall just inside the main entrance and visible even from the street. It is forty feet in length and its paneling is in three sections; first, production and transportation of natural gas; second, utilization of gas in home and industry and third, production of manufactured gas. The whole affair is cleverly illuminated and carries brief but important striking statistics. The A. G. A. Laboratories have an imposing and prominent part. Mr. Forward told the National Committee later the gas industry had the best feature in the World Power Conference Exhibit.

The Washington Gas Light Company has arranged in its own building, 411—10th Street, N. W., gas appliances for inspection by foreign delegates and others.

The Association of Gas Appliance and Equipment Manufacturers, through their committee and general secretary, Mr. Berghorn, extended the fullest cooperation in arranging the exhibit.

Gas Scholars, 1900-1936

Left to right—Prof. A. H. White, Fred Batten and Herman Russell

In the year 1900 the Michigan Gas Association established a Gas Fellowship at the University of Michigan, under the direction of Prof. A. H. White, then a young instructor in the Department of Chemical Engineering. This fellowship has continued for 36 years and is said to be the oldest industrial scholarship in the United States. During the entire course of its existence Prof. White, now head of the Chemical Engineering Department, has directed the work, which has contributed many young engineers to the gas industry. Outstanding among these is the first holder of the fellowship, Herman Russell, now president of the Rochester Gas and Electric Corporation, Rochester, New York, and vice-president of the American Gas Association. Mr. Russell attended the annual meeting of the Michigan Gas Association at the Grand Hotel, Mackinac Island, July 6-8, and is shown photographed with Prof. White and Fred Batten of Detroit, the most recent holder of the fellowship

Administration Building, Texas College of Arts and Industries

Natural Gas Engineering Course Offered By Texas College of Arts and Industries

By F. V. L. PATTEN,
B.S., M.S., PH.D.
Professor of Natural Gas Engineering, Texas College of Arts and Industries

TEXAS, the largest natural gas-producing and natural gas-consuming state in the Union has had, up to this time, no course in natural gas engineering offered in any educational institution within the State. Two years ago this situation came to the attention of various interested members of the gas industry, and it was determined that the Texas College of Arts and Industries, a state educational institution of the first rank, located at Kingsville in the southern Gulf Coast section of the State in the center of a large natural gas-producing area, offered excellent facilities for the establishment of such a course. The Board of Directors of the College, after careful consideration, directed its president, J. O. Loftin, to include such a course in the engineering curricula of the College. Announcement of this fact was made at the annual meeting of the natural gas department of the American Gas Association, held in May, 1935, at Memphis.

Since that time the work of organizing the new department of Natural Gas Engineering, the erection and equipment of suitable laboratory facilities, and the enlargement of the faculty of the College to provide for teaching the course have continued uninterrupted. In September, 1936, the fall session of the College will begin the teaching of subjects directly related to natural gas engineering, for which many students have pursued a preparatory course through their freshman and sophomore years just past.

Kingsville, county seat of Kleberg County, home of the famous King Ranch, world's largest, is situated in the geographical center of a dozen or more producing oil and gas fields. It is forty miles southwest of Corpus Christi, where there is a large industrial application of the use of natural gas in the immense plant of the Southern Alkali Company, and other industrial installations. Within fifty miles are several modern compressor stations on lines of pipe line companies. Practically every neighboring town and village in the southwest Texas area is served by a natural gas distributing system. The admirable facilities of the College, together with the proximity of producing oil and gas fields, pipeline systems and industrial, commercial and domestic installations of natural gas, provide at the College an ideal setting where instruction in natural gas engineering can be carried out.

The Laboratory Building

The natural gas engineering laboratory, which is now being constructed, fronts one hundred feet on a main drive of the campus, near the buildings housing the engineering laboratories and classrooms, is of permanent construction, and will adequately provide for laboratory, storage and classroom requirements. A decided advantage has been found in providing a new building for this purpose, designed expressly to serve the natural gas engineering course, rather than to attempt to rearrange an existing building to accommodate the technical requirements involved.

The Curriculum

The curriculum has been designed to fit men for the particular needs of the natural gas industry. To accomplish this, fundamental training in mathematics, chemistry, physics and geology, and basic courses in civil, electrical and mechanical engineering have been supplemented by thirty-one semester hours in courses relating especially to the gas industry. In these courses a study will be made of the production, measurement, transmission, distribution and utilization of natural gas, together with such associated subjects as combustion, the production of manufactured gas, oil and gas laws and the economics of the natural gas industry.

A minimum of six months' experience in the natural gas industry will be required for graduation. This employment has been arranged through the cooperation of a number of the natural gas companies operating in Texas. It is planned that the students

will work in various capacities during this period in order that, at graduation, they will have had practical experience in as many of the phases of the natural gas industry as possible.

Description of Courses

A. NATURAL GAS GEOLOGY. Three semester hours. This is a theory and laboratory course, dealing with the geology of natural gas formation. It will include a study of the theories, of the origin and segregation of petroleum and natural gas, the methods employed by geologists in locating oil and gas fields from surface and subsurface data and of the methods employed in estimating natural gas reserves.

B. NATURAL GAS PRODUCTION. Six semester hours. This course will teach the various methods used in drilling oil and gas wells, producing gas from oil and gas wells, and using natural gas for re-pressuring and for lifting oil. In connection with these subjects, frequent trips will be made to the oil and gas fields in the vicinity of Kingsville. Particular attention will be given to the problems encountered in the production of gas from gas wells, the measurement of the producing capacity of gas wells and the technique employed when natural gas is used for lifting oil.

C. NATURAL GAS MEASUREMENT. Four semester hours. This course will deal with the measurement of the quantity and rate of flow of gas, the measurement of losses and pressure drops along transmission and distribution lines and the regulation of gas pressures. A complete set of equipment, including a compressor, orifice meters, large capacity displacement meters, domestic meters, critical flow provers, low-pressure provers and various types of regulators have been obtained for the laboratory work in this course. In addition, the facilities of the local gas company, which constitute a production, transmission and distribution system, have been made available for this and the other courses in natural gas engineering.

D. NATURAL GAS TRANSMISSION. Four semester hours. In the course in natural gas transmission a thorough study will be made of transmission system, including the determination of optimum pressures, the construction and operation of pipe lines and compressor stations, and distances between compressors and pipe line sizes. Attention will also be given to corrosion in pipe lines and methods of preventing it, and to the formation of the natural gas hydrates.

E. NATURAL GAS DISTRIBUTION. Three semester hours. This course will deal with the problems encountered in the distribution of natural gas, including the design of distribution systems, methods of improving the load factor, and storage capacities of pipe lines and storage tanks.

F. NATURAL GAS USES. Two semester hours. In this course a study will be made of the behavior of natural gas when it is used for various purposes. The subject matter covered will include the design of gas burners, the design of flues and chimneys, the use of natural gas in heating and air-conditioning, and the industrial use of natural gas. Tests will be made on gas engines, boilers, water heaters, stoves, etc.

G. OIL AND GAS LAWS. Three semester hours. In this course the student will become acquainted with the legal phases of the natural gas industry, including leases, easements, rights of way, liabilities, city ordinances, and franchises.

H. NATURAL GAS ECONOMICS. Three semester hours. In this course a study will be made of the financial phases of the natural gas industry.

I. CHEMISTRY OF FUELS. Three semester hours. In this course will be included a study of chemistry of alaphatic hydro-carbons, a study of the gas laws and deviations therefrom, with particular data for natural gas, rates of reaction and chemical equilibria, a study of combustion, including the velocity of combustion reactions, the equilibria involved in combustion, the inflammability limits for combustible gases, and problems in stoichiometry. Heat transfer will also be taken up after which there will follow a study of production of manufactured gas.

The laboratory work for this course will include Hempel, Orsat and modified Orsat analyses, calorimetry, the determination of the gasoline content, humidity, hydrogen sulphide content, and sulphur content of natural gas, standard tests on natural gasoline and the determination of the electrical resistance of pipe coatings.

Cooperation of Gas Industry

When the officers and directors of the College determined to inaugurate the course in natural gas engineering, the cooperation of the industry generally was invited, and the project was endorsed by the directors of the American Gas Association. The president of the College then invited representative gas men in Texas to form themselves into an advisory committee, to act in an advisory capacity during the organization period and thereafter, if deemed advisable. A committee of nine members was formed, including Captain A. E. Higgins, secretary of the natural gas department of the American Gas Association, and executives of producing, transporting and distributing companies in various sections of the State. These members were immediately organized into committees on Curriculum, on Equipment, and on Undergraduate Employment, and have functioned continuously since their organization along these several lines.

Manufacturers were invited to contribute material to be included in the equipment of the newly constructed laboratory and classroom building, and responded generously. During the summer of 1936 more than thirty students, registered for the natural gas engineering course during their previous year at the College, have had two months of summer employment by various gas companies in the State.

Members of the gas industry in Texas, who are informed about this enterprise, now feel that not only has their business been dignified by the establishment of this course in a state educational institution of the first rank, but also that they will soon have a source to which they may turn to obtain men trained in natural gas engineering in theory as well as in practice, with the added advantage of a general college education. Students from other states will also be admitted, and many members of the gas industry have already indicated that they expect that the effect of the course will be greatly beneficial to the entire natural gas industry, and particularly to the state of Texas.

Putting Meter Readers in Uniform

By GEORGE JAQUET*

Chairman, Subcommittee on Employee Training, Committee on Personnel Practices

PRELIMINARY to deciding whether our meter readers should be uniformed, our Company made a quick study of its reported advantages and costs, the trend in style of uniform and other phases of this question. The practice of several gas companies whose meter readers, and in some cases service men also, have been uniformed for several years was looked into; also information was secured from several firms which supply this equipment to gas and electric companies. This article sets forth some of the points brought out.

Value of Uniforms

The value that the gas companies interviewed attach to the practice of uniforming those groups of employees who meet the customer in their homes is summed up in the following:

> Uniforming meter readers and appliance service men is highly desirable and the companies reporting would be loath to discontinue the practice were it necessary for one reason or another.
>
> Since they have been put in uniform, meter readers appear to be on a much better footing with the customer. Keys are loaned to them more readily, and they are trusted more freely when entering premises to read meters.
>
> The public is more readily disposed to look upon them as the company's representatives.

A recent episode in a New England gas company is in point. A substitute meter reader in ordinary street clothes took the place during the vacation period of the meter reader who regularly covers that route and is always seen in uniform. Repeated telephone calls were received at the office inquiring whether the man who represented himself to be a meter reader was actually an authorized representative of the company and whether he should be given access to the meter.

From the standpoint of customer goodwill, uniforms have proved to be of specific value on frequent occasions, the gas companies interviewed report. Further, the public is more inclined to feel that it is getting its money's worth with the service it buys. The clean-cut, orderly appearance of a man in uniform creates in the minds of customers the impression that orderly management prevails within the company in just the same way that a well kept, orderly appearing substation and grounds make a favorable impression. To the passerby, these are outward expressions of good management. Furthermore, uniforms help to achieve good grooming which is frequently difficult to attain without an aid of this nature.

Putting meter and servicing men into uniforms is of questionable value unless the uniforms are consistently well kept and the men are well groomed every day. In other words, keeping the uniform clean and well pressed at all times is necessary. An employee in a soiled or bedraggled uniform is more of a liability to the company than a man in civilian clothes.

Hence, upkeep of uniforms is quite as important as selection at the time of purchase. Minimum-cost upkeep means when buying the uniforms, choosing fabrics, linings and workmanship which will give long wear and call for minimum repairs with ordinary wear and tear. This is fully as important as selection for good appearance. The buyer is faced with deciding between several qualities of fabric; the cheaper grades are likely to be the most expensive in the end. A good fabric will not only give longer wear but the garment will fit better and drape more attractively. Furthermore, it will retain its shape much longer and resist more successfully the ravages of rain and storm. A sound cost estimate involves not only the original purchase price but the running expense of maintenance thereafter.

Style of Garment

Two distinct types are in use: the semi-civilian, sack-coat type; the military or semi-military, somewhat-form-fitting type.

Uniform makers advise that today's trend is away from the military type; Sam Browne belts are being dispensed with. The trend is towards the sack-coat type. There is more latitude in the details of the sack-coat style of uniform. The back may be plain or form fitting; it may be belted somewhat on the order of a Norfolk jacket, or it may hang straight from the shoulders. The side pockets of the coats may have flaps or they may be of the plain "slit" type. The edges of the pockets may be "piped," that is the openings are lined with leather and show very little of it; or the leather may be one-half inch wide and conspicuous.

The sack-coat type of uniform

* Mr. Jaquet is Supervisor of Customer Relations, The Connecticut Light and Power Company, Hartford, Connecticut.

calls for trousers; breeches and puttees do not look well with the sack coat. In winter when meter readers trudge through snow, most of them wear galoshes and the ends of the trouser legs are tucked into the footwear. Trousers, hence, from this standpoint, are practicable for all-year-round use, and are to be preferred to the plan where breeches are worn in winter and trousers in summer.

In some cases no vest is worn but a sweater is provided for cold weather. For very cold weather a reefer-type of overcoat which is three inches longer than the sack coat is employed. This is a suitable length which does not hamper the knees in walking. In the summer, the uniform consists of trousers, shirt and cap. In rainy weather, a raincoat is used and a rubber cap cover such as policemen employ is supplied to protect the cap.

The shirt should not be white. Several types of cap have been experimented with. The so-called "eight-point" cap is the most suitable for use with a sack-coat uniform. Also it is favored by employees because it is comfortable and is not easily knocked off in passing through doors or under low ceilings.

Choosing a type of uniform that is acceptable to those who must wear it is of great importance. The wearer must put up with it every day although he may not like some features. Hence, attention to practical details of design and manufacture is vital. The breaking-in period calls for overcoming opposition but this is a transitional phase.

Men furnish the tie, which should preferably be a black four-in-hand. They supply the shoes, belt and socks. Shoes are black. The neckband shirt with separate collars is used in preference to the attached-collar model. With separate collars, men can be induced to use a clean collar every day. Shirts should be renewed at the beginning of summer so they will be in prime condition during the season that no coats are worn.

Several types of raincoats have been experimented with. A lightweight, linen-processed, medium-cost raincoat known as the "Alligator" appears to be best. This type allows body steaming to work through, is light to carry, and is favored by the men.

Illustrations of summer and winter uniforms used by employees of a large gas company

Meter readers dressed for work

Kinds of Fabric

For the sack coat and trousers, four kinds of fabric are generally used: whipcord, gabardine, sharkskin and serge. Contrary to general impression, experience shows that whipcord breaks after a time at points where folds occur. Serge and some forms of sharkskin appear to be most desirable. They wear longer and look well over a long period of time. Sharkskin is softest and drapes best. Some manufacturers "cravenette" this material to give it a certain water-proofing quality.

Some companies equip their men with a winter-weight uniform and another of summer weight. Experience shows that in moderate climates two uniforms are not necessary if a serge of medium weight—16 ounces—is adopted; 13- and 14-ounce serges are on the market, urged in some cases by price-cutting bidders; for all-year-round wear, they are deemed to be too light.

One company began to uniform its meter readers six years ago. As shirts, coats and breeches wore out, they tried one style after another and various materials, with the object of improving the appearance of the

men and reducing the cost. Without going into the history of these changes from year to year, suffice to say that a summer-weight and a winter-weight uniform made of whipcord are now employed. But, the next purchase will call for an all-year-'round uniform made of an intermediate weight serge, 16 oz. weight. Another company which is now about to uniform its meter readers and service men after devoting six months to study of the problem, has decided to adopt serge of medium weight for all-year-'round use.

If the sack-coat type is selected, forest green and similar military colors are automatically eliminated and something in the grays or near blacks as oxford gray, or something a little less dark, is in order. When service men are uniformed, they should wear a slightly different color so the public will distinguish them from meter readers.

Once a month uniforms are cleaned and pressed by a tailor who calls for them and returns them on a day that meter readers are not in the field. Once a year they are overhauled by the same tailor. Company buttons are cut off of those which are discarded. The men press the uniforms themselves at other times. Tears, when they occur between times of overhauling, are repaired at company expense. On this basis, the overall equipment and maintenance cost is as below:

Purchase of equipment and renewals each year	$37.32
Pressing once a month	6.00
Overhaul once a year	1.50
Provision for contingencies	1.00
Overall cost per man per year	$45.82

As a rule the department head or supervisor over the employees who are in uniform is in charge, has full authority, and is entirely responsible. This means that in some organizations the office manager or the controller has this matter in charge as it pertains to meter readers. In the case of appliance service men, this responsibility would fall upon the district engineer or the person directly in charge of the service men.

ANNUAL EQUIPMENT COST PER MAN*
Based on Initial Purchase of 50 Units

Article	*Period of Wear*	*Initial Cost*	*Annual Cost*
Cap	1 year	$ 2.25	$ 2.25
Cap Insignia	5 years	1.00	.20
Rubber cap cover	3 years	1.25	.42
Sack coat	2 years	16.50	8.25
Worsted sweater	3 years	3.25	1.09
2 Pairs of trousers	1⅓ years	16.00	12.00
Reefer overcoat (unlined)	3 years	15.50	5.17
Alligator-type raincoat	3 years	5.50	1.84
3 Shirts each with 2 collars	1 year	5.50	5.50
3 Additional collars	1 year	.60	.60
Total		$67.35	$37.32

* Figures are based on: best quality of linings, trimmings, bindings and workmanship; buttons bearing company emblems; company initials on each garment.

Maintenance Program

Methods employed vary with different companies. A number leave the pressing and cleaning entirely to the employee holding him responsible for meeting inspection requirements. Twice annually, the uniform is gone over by a company tailor at company expense, when everything is put in order and replacements of individual articles are made as conditions require. The practice of one company whose men are conspicuous for the consistently excellent appearance of their uniforms follows.

Source of Supply

Following is the experience of one company:

During the six years that the men have been in uniform the orders have been placed with five different firms. The first supplier was a well-known, reputable manufacturer who gives special attention to supplying utility companies with uniforms. In an endeavor to give business to local firms, three local firms were given the contract each in turn during the three years that ensued. These suppliers proved unsatisfactory in point of the grade of goods supplied and of service. The fifth time the business was given directly to a manufacturer other than the first one named. This manufacturer supplied inferior material which did not conform to the samples submitted. Last year the gas company placed its order with the manufacturer it dealt with in the first year. Product, service and relations are very satisfactory.

This firm, like one or two others which enjoy a long-term reputation for a dependable product, uniforms the employees of a large railroad as well as those of several gas and electric companies. These two or three manufacturers usually designate a local tailor who fits the uniform to the man upon its delivery. Under this arrangement, the company deals directly with the manufacturer. There is no intermediary to introduce complications as is the case when transactions must pass through a local agent. The routine of odering is greatly simplified and the manufacturer has the measurements and size on record for each man. Reordering is simple. Investigation reveals that where the buyer must deal with a local clothing firm, the price paid by the gas company is 7 to 15 per cent higher than where purchase is made direct from the manufacturer. In one case where there is no difference in price, the services of the manufacturer's representative are not made available and thus the valuable direct contact with the factory is lost. Regardless of whether purchase is made direct from the manufacturer or through a local agent, the former designates a tailor who fits the uniform to the man. The cost of this is included in the manufacturer's quoted price.

The utility companies interviewed pointed out that keeping the men in uniform may prove to have many irritations for those in charge if the uniforms are not of good material, well made and of good fit. Also, details while minor in themselves become very aggravating unless the men find their uniforms convenient to use in the day's work.

Gas Serves Texas Centennial

Left—All-gas kitchen in model home at Texas Centennial. Below—Ranges converted to gas at the U. S. Army post during the Centennial

UNSEEN by the eye that roves over the awe-inspiring magnificence of the Texas Centennial Exposition at Dallas, lies a hidden network of steel and iron which is supplying Texas natural gas to serve the millions who visit and the thousands who operate the greatest spectacle of the Southwest.

Natural gas service at the Centennial is performing hundreds of duties, from cooking biscuits for hungry Centennial throngs to furnishing steam to process soy beans, from keeping the city's sparkling skyline unblemished to sizzling the ever-present hamburger. In practically every building, restaurant, exhibit and lunch stand, natural gas is being used for cooking, heating, water heating and in many instances refrigeration. Gas is operating air conditioning systems to relieve mid-summer visitors of outside heat. Diners in the famous Black Forest, the Show Boat and other pleasant eating places along the midway are eating food prepared in gas-fired kitchens.

Housewives are learning the way of escape from kitchen drudgery, how to keep husbands contented, children healthy, the maid happy and how to become the most popular hostess in the block, by visiting modern all-gas kitchens in the model homes at the Centennial. Modern magic of natural gas in the up-to-the-minute home will be equally as thrilling as the magic which raised a spectacle of grandeur almost overnight on the site of the former State Fair of Texas grounds.

Quickly and efficiently engineers and crews of the Dallas Gas Company laid more than 12,000 feet of main lines and additional thousands of feet of service lines to the many buildings and concessions on the grounds. An intricate maze of pipe lines is interwoven with the underground network of other utilities.

At the first of the year when Centennial workmen began clearing condemned structures to make way for enlarged grounds, the gas company's work began.

Working hastily ahead of Centennial street and building construction, gas company workers had to dig up every foot of main and service lines in the condemned area. Even within the old State Fair grounds, pipe had to be removed to make way for new streets. After weeks of this work, with only 2,100 feet of the old cast-iron system remaining in the grounds to serve one small area, actual construction of the new system was started.

After being held up until definite locations of major buildings and concessions had been decided upon, gas men began on rush schedules in April and the new welded steel network of mains and service lines rapidly took shape.

Five separate tie-ins with the regular city gas distribution system assures uninterrupted gas service to the Centennial. The high pressure main line enters the Centennial grounds through two regulators, one at the northwest corner of the grounds, the other on the south side. The regulators step the pressure down to the six pounds carried on the Centennial main line system. In addition to this high-pressure system, low-pressure pipe lines enter the grounds at three different points, pressure being held to three and four ounces through the district regulators of the regular city system which surrounds the Centennial. High pressure lines range from two to four inches in size and low pressure from two to six inches.

The gas company laid approximately 100 service lines, ranging in size from one and one-fourth inches to four inches, and taking gas into every nook and corner of the grounds.

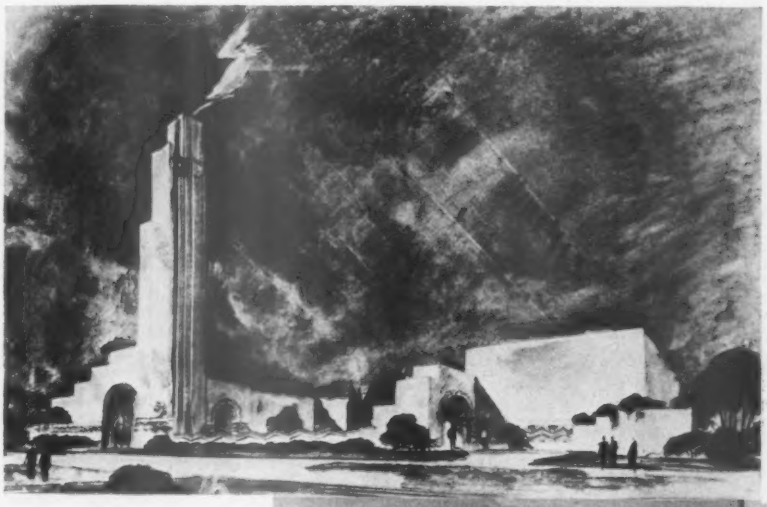
Three uniformed service men are on duty in the office which the company maintains in the Utility Building within the Centennial grounds. The men are in instant readiness from the time the gates open in the morning until they close at night, to service and adjust gas appliances and meet any emergency calls.

Between 1,000 and 1,500 tons capacity of air cooling equipment is used to cool the air and reduce humidity in buildings at the Centennial, and gas operates representative systems in the Hall of Religion, the Masonite model home and the Contemporary home.

With an air volume of 16,160 cubic feet, the Masonite house cooling equipment is designed for a crowd of 110 persons. Eleven hundred cubic feet of fresh air per minute will be introduced into the house for ventilation purposes and the total air circulated is 6,560 cubic feet per minute. Inside temperature is maintained at 80° with 50 per cent relative humidity. A thermostat that controls a gas engine compressor cooling unit regulates the inside temperature, while humidity is controlled through a humidistat governing a Silica-Gel unit. A warm air furnace will furnish heat during the winter through the same air conditioning blower and ducts that supply cool air in the summer.

Two gas engines operate the Contemporary Home air conditioning equipment which has a capacity rated at 14 tons of refrigeration. A gas hot water boiler will furnish heat through the air conditioning system in cold weather.

With an air volume of 66,500 cubic feet and designed for a maximum crowd of 385 persons, the Hall of Religion has an air conditioning system which maintains inside temperatures at 80° with 50 per cent relative humidity when outside temperature is 100°. Nearly 4,000 cubic feet of fresh air per minute are produced through the air conditioning system to provide proper ventilation. The total cooling load furnished through the gas engine operated air conditioning system is rated at 42.3 tons of refrigera-



Above—Hall of Religion at Texas Centennial donated to the churches of Texas by the stockholders of the Lone Star Gas System. Right—Esplanade at entrance of Centennial

tion. Total air circulated through the system is 16,400 cubic feet per minute. A gas boiler will furnish steam for winter heating.

Use of gas in producing flour from the time wheat is made into flour until it is baked in a modern gas oven will be demonstrated in the flour mills' exhibit which include three modern gas kitchens known as the Southern Laboratory Kitchens. Each of the three kitchens, installed to handle the large volume of baking and processing involved in preparing various types of food, is equipped with modern gas range, gas refrigerator, and gas storage water heater. The kitchens are conducted by Mrs. Ida M. Chitwood, well-known director of home economics, who lectures throughout the day.

Gas Appliances Featured

Latest developments in scientific helps to home cooking will be seen in modern gas kitchens in the Contemporary Home and the Southern Pine House, while the kitchen in the Hall of Religion is designed to serve as a model for church kitchens. Here the housewife may see new-era food preparation centers where gas ranges, water heaters and refrigerators embody the latest engineering developments, with speed and convenience exemplified.

Whatever the Centennial visitor chooses to eat, American or foreign foods and specialties, it is cooked with natural gas, for every restaurant and cafe on the Centennial grounds is gas equipped.

A variety of foods may be found in major restaurants and cafes at moderate prices. German as well as American specialties are offered at the Nuremburg restaurant and the cafes in the Black Forest village. Chop suey, chow mein and other oriental dishes of more exotic nature are found in the cafe of the City of China. The roast beef of old England is featured in the Falstaff Tavern in the Old English village, while French cuisine attracts gourmets to cafes in the Streets of Paris. The Chuck Wagon features food taken from the old range days, with barbecue an outstanding specialty.

In all of these eating places, the visitor will find among other gas equipment modern heavy duty ranges, deep fat friers, broilers, frialators, toasters, bake ovens and coffee urns.

The United States Army has what is perhaps the most unusual food preparation center on the grounds. A battery of ten ranges is in use 15 hours out of every 24 to provide three meals daily for the 600 soldiers in the camp. The ranges, formerly used in coal burning territory, were converted to natural gas by burners fashioned at the Dallas Gas Company shops.

The Ford Building executive lounge, reserved for Ford officials and their guests, is equipped with a six-burner double oven gas range presided over by a chef brought to Texas for this purpose.

Gas also takes part in the Ford Building in an exhibit which is regarded as a possible forerunner of a new industrial use for a Texas farm product. A gas-fired boiler furnishes steam which aids in processing soy beans in the Ford exhibit. The oil is extracted for use as a base for lacquer and paint, the meal used as a plastic material to form horn buttons, light switches, and numerous other parts for Ford automobiles.

John J. O'Brien Dies

John J. O'Brien

JOHN J. O'BRIEN, president of H. M. Byllesby and Company and Standard Gas and Electric Company, Chicago, Ill., died August 7 of a heart attack following a two weeks' illness.

Mr. O'Brien, who has been prominent in the public utility industry for many years, resided with his daughter, Mrs. Katharine J. Carbaugh, at 209 Lake Shore Drive, Chicago, his wife, who was Miss Julia Hoy, having died many years ago. Surviving brothers and sisters, all of Chicago, are Peter J. O'Brien, Margaret O'Brien, Martin J. O'Brien, Lawrence J. O'Brien, Nell O'Brien, Mrs. Joseph E. White and William P. O'Brien.

Mr. O'Brien was born in Chicago, April 2, 1869, the son of James and Bridget (Long) O'Brien. He was educated in public and parochial schools and business colleges and was employed by the Pullman Company at the age of eighteen. Two years later, in 1889, he became associated with the Chicago office of the United Edison Manufacturing Company, predecessor of the company which was merged with the General Electric Company in 1892. He was in charge of accounting for the Chicago office territory of the General Electric Company, when, in 1902, he became associated with the late Colonel H. M. Byllesby in the formation of the Byllesby organization. During the years that followed, Mr. O'Brien served as treasurer and general auditor of the company, and upon the death of Colonel Byllesby in 1924 he was elected president of the Byllesby organization.

As a partner in the Byllesby organization, Mr. O'Brien was a pioneer in the promotion of the group method of developing gas and electric properties, through the application of centralized financial, engineering and management services. He was a director of many utility companies, including the following: Standard Power and Light Corporation, Northern States Power Company, Louisville Gas and Electric Company, Oklahoma Gas and Electric Company, Philadelphia Company, Duquesne Light Company, San Diego Consolidated Gas and Electric Company, Southern Colorado Power Company, The California Oregon Power Company, Mountain States Power Company, and Pacific Gas and Electric Company.

Brooklyn Union Revamps New Business Dept.

GEORGE F. B. OWENS has been appointed acting manager of The Brooklyn Union Gas Company's new business department, according to an announcement by Assistant Vice-President Hugh H. Cuthrell. Several other changes in organization were announced at the same time.

Mr. Owens, who had been domestic sales manager for more than five years, succeeds Mr. Cuthrell who was elected assistant vice-president early this year. Mr. Cuthrell will henceforth devote himself to executive duties in connection with new business operations.

Walter E. Bolte, who had been wholesale sales supervisor for more than five years, succeeds Mr. Owens as domestic sales manager. Willard C. Wolff, who had been district sales manager for Nassau Branch since September 1, 1935, is the new wholesale sales supervisor. Castle Moore, a house-heating supervisor, takes Mr. Wolff's place as district sales manager for Nassau Branch.

A new division in the new business department was also announced by Mr. Cuthrell. This new unit is the commercial division which will be headed by Joseph F. Quinn as commercial sales manager. Mr. Quinn had been a supervisor in the industrial division for the past 11 years.

There will be two sections in the new commercial division. One will handle general commercial sales and will be under the supervision of Charles Aspinwall, who has supervised sales of hotel and restaurant equipment for the past 13 years. The second section will take care of commercial heating equipment and will be under the supervision of Harold Birkett, who has been in the industrial division for the past five years.

Kitchen and exterior views of Hotel Del Coronado

Hotel Del Coronado Turns to Gas

By RALPH J. PHILLIPS

Engineer in Charge Gas Sales, San Diego Consolidated Gas & Electric Co.

KNOWN far and wide by discriminating people for its comfort and luxury, Hotel Del Coronado on San Diego Bay has for years enjoyed an enviable reputation among the world's finest resorts.

Richard Hagopian, pictured above, chef-steward of the Hotel Del Coronado, has a background of years' service in such resorts as the Arizona Biltmore, the Mission Inn, the Canon Hotel, Yellowstone National Park, and others equally well known in the East, including a famous resort in the Bermudas. The kitchen staff at Coronado under Mr. Hagopian numbers some 48 men exclusive of waiters.

It is doubtless a fact that experts such as these could turn out a dinner fit for a king if they had only a pile of wood for fuel and an open fireplace. But, until the recent change to natural gas with modern heavy duty equipment these men could not enjoy the comfort, the speed and the convenience they justly deserve. Hours are saved each day and service has been materially speeded up since the installation of this new equipment. Gone are the days of worrying about oven temperatures. Now they are neither too hot nor too cool, but just the proper temperature, and this exact temperature is constantly maintained by the new thermostatically controlled ovens. Top cooking too has been greatly simplified. No longer do the cooks perspire over a red hot range shifting heavy stock pots as the cooking progresses. The temperature under each kettle is now adjusted to meet the most exacting requirements. Through the use of insulated ovens the kitchen temperature has been greatly reduced, much to the joy and satisfaction of the staff. Specialized gas cooking devices such as broilers, extra top surfaces, etc., are used also with the ranges.

From the standpoint of the management, however, the matter of operating cost is most satisfactory in that there is an actual reduction in cost over the previous fuel and, furthermore, maintenance, which was a very important item, has been reduced to almost nothing. It was, however, only after long and serious consideration of the problem that the management finally decided to make the change to natural gas. Numerous obstacles stood in the way, but by patient though persistent effort they were each overcome by the sales engineers of the local utility company. An interesting sidelight of their sales work was the fact that the cost of the first full month's operation on natural gas was approximately 13 per cent below the estimated costs.

Chicago's Heating and Air Conditioning Show Attracts 50,000

By WINFIELD FOSTER
The Peoples Gas Light and Coke Co., Chicago, Illinois

WIDESPREAD interest in "home comforts" on the part of Chicago gas customers was manifested in the attention of 50,000 visitors during the first two weeks of The Peoples Gas Light and Coke Company's "Open House" and Heating and Air-Conditioning Show, which was opened to the public during the month of August, on the main floor and home service auditorium of the Peoples Gas Building.

The company's home service auditorium was divided into sections, featuring exhibits by nine leading manufacturers of heating and air conditioning equipment, each showing the latest developments in automatic devices to provide this phase of home comfort.

The auditorium was newly air conditioned expressly for the opening of the exhibits, and visitors were afforded the doubly convincing experience of seeing the latest developments in a fast growing industry, while at the same time breathing the cool, clean stream of "mountain air" that the units they viewed were capable of producing.

Engineers for the company, on duty at the exhibit, emphasized the importance of each of the four vital elements in complete air conditioning for summer and winter—warming, humidifying, cleaning and circulating in winter, and cooling, dehumidifying, cleaning and circulating in summer.

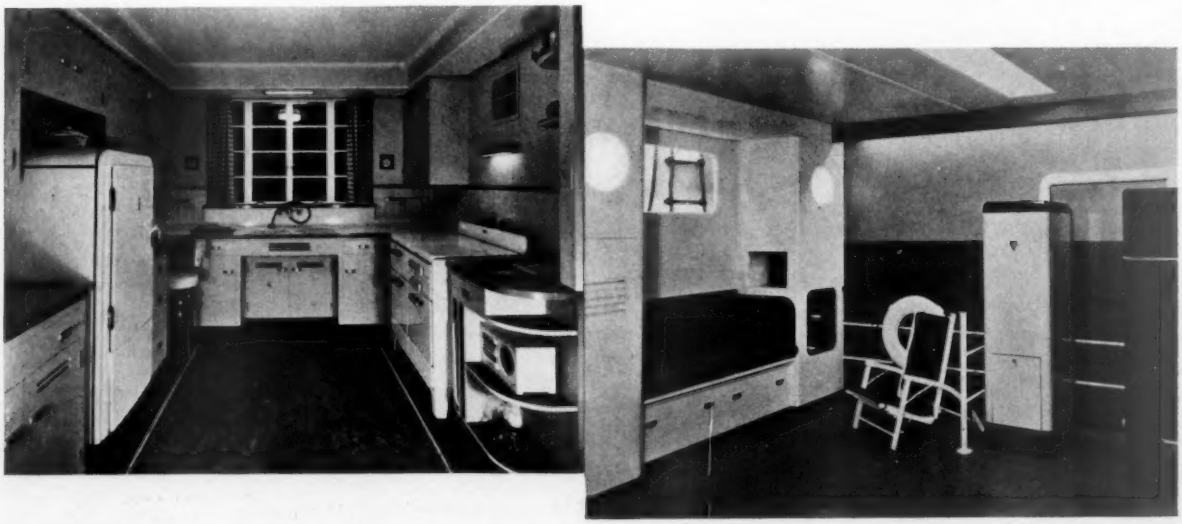
Gas Kitchen Attractive

Particularly attractive to women customers was "America's Finest Kitchen" in the center of the main floor lobby. It was designed by the company's Kitchen and Basement Planning Bureau, under the direction of Harry Swenson, and depicted a forward stride in kitchen design, with charming color combinations giving it a cheery atmosphere. The kitchen was divided into two sections, each with large wide-paned windows, and separate color treatment. In one section were located the gas range, gas refrigerator, sink, recipe table and cabinets, and the adjoining room was a breakfast room with roomy table and four chairs done in light oak and ivory colored leather. Both sections were provided with ample closet space and recessed shelves for clocks, barometers, and other kitchen accessories.

The gas ranges on exhibition in the kitchen were changed every few days to give equal display opportunity to the makes of various range manufacturers.

Another feature of the "Open House" was a puppet show, located on a large stage on the main floor, which told by voice recordings and the movements of the foot-high puppets an interesting story of an average family, how home service and gas service entered their lives, and how the despicable character, "DIRT," was routed from their home by gas heat.

At 2:30 every afternoon during the month except Saturday and Sunday, on a platform erected in full view of the model kitchen bungalow, a style show was staged, showing the latest in women's wearing apparel for fall and winter. The style show, including the professional models, was furnished by



Left—All-gas model kitchen at Chicago's heating and air conditioning show. Right—Blue and white "nautical basement" at the show, designed in harmony with the modern gas water heater and the gas-fired furnace

several downtown department stores in turn.

The regular sales room, adjoining the main floor lobby, in addition to the regular display of appliances, contained a "Nautical Basement," fashioned from a boat's cabin interior, complete with portholes, steamer chairs, a bunk seat and a window through which a variety of watercraft was realistically pictured lying at anchor in a harbor. In the same sales room another model kitchen which could be viewed from the street through the outside sales window gave cooking demonstrations and dispensed refreshments to the visitors.

To act as hostesses and to assist in directing the thousands of visitors, fifty-five "personality girls" were elected from the ranks of the company's employees, by a general election sponsored by the Peoples Gas Club. Each of the fifty-five girls was presented with a gift at an employees' "Open House" night at which time a special style show with dancing and entertainment was staged for the company's 4,000 employees and their friends.

Prize Contests

To further create interest in the model kitchen and show two sets of prizes, listed below, were offered to the visitor, seven prizes for the seven best suggestions naming "America's Finest Kitchen" and five separate prizes for the person submitting the best 12-word slogans on "Home Comfort." The prizes were:

"America's Finest Kitchen"

1. 7 ft. Electrolux gas refrigerator.
2. 4 ft. Electrolux gas refrigerator.
3. 6-burner Roper gas range.
4. Moore "Guardian" gas range.
5. Detroit-Jewel gas range.
6. Magic Chef gas range.
7. Crane Automatic gas water heater.

next 10 Princess Coffee Makers.
next 25 Sealsacs.

12 word Slogan on "Home Comfort."

1. 5 ft. Electrolux gas refrigerator.
2. 6 burner Universal gas range.
3. A.B. Gas range.
4. Estate gas range.
5. Crown Gas range.

next 15 Cory Princess Coffee Makers.
next 15 Sealsacs.

Mitzi Green Okays Gas Kitchen

Mitzi Green, child movie marvel of several years ago, in "Skippy" and "Little Orphan Annie," stopped in to see the model all-gas kitchen of The Peoples Gas Light and Coke Company, Chicago, Ill., while on her way to New York for a big part in a musical comedy. Mitzi is a modern girl with a bright future and readily placed her stamp of approval on the model kitchen

It has been found through past experience, that more interest in a contest could be stimulated by offering a number of prizes than by concentrating on one grand prize. In each case the visitor was asked to write the name and slogan entry on a card provided for the purpose and drop it in a contest box located at the end of the air-conditioning exhibit room.

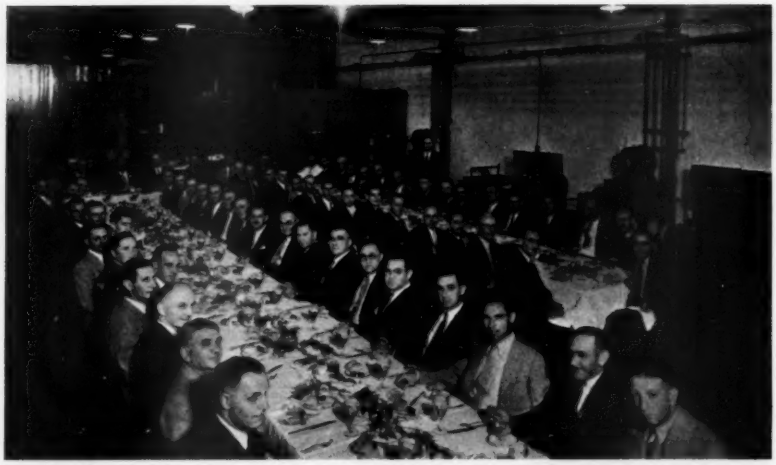
The large attendance at the show during the first week proves that thousands of gas customers are "comfort minded" and the show with its modern displays of gas designed heating and air conditioning and the model kitchen has acquainted many of them with the fact that gas service is in step with the latest strides of science and industry in contributing to the comfort of the modern home.

The exhibitors in the show were: The American Foundry and Furnace Company, Air Conditioning Corporation, Mueller Furnace Company, Surface Combustion Corp., American Gas Products Corp., American Radiator Company, Crane Company, Bryant Air Conditioning Corporation, Trane Company, James B. Clow & Sons, General Gas Light Company, National Radiator Corporation, Forest City Foundries Company, The Moore Corporation and the Autogas Corporation.

House Organ Sent to Employees' Homes

THE Boston Consolidated Gas Company, Boston, Mass., has begun sending the house organ, "Boston Gas Lines," direct to the homes of employees so that they and their families may read it at their leisure.

A. G. A. Laboratories' Program Discussed at Pacific Coast Meetings



Gas appliance manufacturers meeting at the Pacific Coast branch of the Testing Laboratories in Los Angeles

THREE important meetings of gas appliance manufacturers and utility executives were held on the Pacific Coast in July during the visit of R. M. Conner, director of the A. G. A. Testing Laboratories, who had previously attended the annual convention of the Canadian Gas Association in Vancouver, B. C. The purpose of the meetings was to discuss various phases of the Laboratories' activities.

In San Francisco a dinner meeting attended by the principal gas appliance manufacturers of northern California was held at the Bellevue Hotel on Friday evening, July 17. Clarence Graham, president of the James Graham Manufacturing Co., Newark, Calif., presided as toastmaster at the dinner at which some 24 gas appliance manufacturers and guests were present.

Following a brief talk by Mr. Graham, Mr. Conner discussed the work of the Laboratories with particular reference to the relationship of the program to the manufacturers. Addresses were also given by Dr. F. E. Vandaveer, in charge of the Pacific Coast branch of the Laboratories, and by H. R. Basford of the H. R. Basford Co., San Francisco.

The remaining two meetings were held in Los Angeles July 21 in the Pacific Coast branch of the Laboratories, giving those present an opportunity to inspect the testing and research facilities at 718 Towne Ave., where the branch laboratory was established by the Association six years ago.

The luncheon meeting, attended by gas company executives from southern California, was presided over by A. F. Bridge, vice-president in charge of operations, Southern Counties Gas Company, and the Pacific Coast member of the Laboratories' Managing Committee. Following the luncheon, Mr. Bridge addressed the meeting after which talks were given by Mr. Conner; A. E. Higgins, secretary, Natural Gas Department, American Gas Association; Franklin S. Wade, president and general manager of the Southern Counties Gas Company of California; H. L. Masser, vice-president of the Los Angeles Gas and Electric Corp.; and F. M. Banks, vice-president of the Southern California Gas Company. Messrs. Bridge, Wade, Masser and Banks spoke enthusiastically of the accomplishments of the Testing Laboratories and the importance of the Laboratories' program to

Luncheon meeting of gas company executives at the Pacific Coast branch of the Laboratories

Meeting of gas appliance manufacturers at the Bellevue Hotel, San Francisco

the welfare of the industry. Dr. Vandaveer was highly complimented on the service being rendered by the Pacific Coast branch under his supervision.

The evening dinner meeting was attended by 79 guests, including representatives from 50 companies producing gas appliances and accessories in southern California. Elroy Payne, vice-president and general manager, Payne Furnace and Supply Company, presided as toastmaster at the banquet in the absence of A. R. Bailey, chairman of the Manufacturers' Section of the Pacific Coast Gas Association. Mr. Payne was chairman of the Manufacturers' Section last year. In addition to a brief talk by Mr. Payne, addresses were given by A. E. Higgins and R. M. Conner. Comments and remarks were invited from all those present concerning the past work of the Laboratories and ways and means by which the Laboratories' program could be made more valuable from the standpoint of manufacturers.

Many of those present gave brief talks including A. J. Hartfield, president, Pacific Gas Radiator Company; D. P. O'Keefe, vice-president, O'Keefe & Merritt Company; E. S. Hoyt, Jr., Hoyt Heater Company and Walter M. Berry, consulting gas engineer of Los Angeles.

Gas Meter Achieves High Accuracy

(Statement by Bureau of Standards, August 7)

THERE are many kinds of gas meters, some of which are as unlike the familiar household variety as a high-precision balance is unlike a kitchen scale, according to the National Bureau of Standards, Department of Commerce, which unit of the government has devoted many months to the design and construction of a new gas meter in cooperation with the engineers of the industry.

One of the most interesting of these unusual meters is the "improved reference gas meter" recently constructed at Joliet, Illinois, by The Peoples Gas Light and Coke Co., the Chicago District Pipe Line Co., and the National Bureau of Standards, all working together in the interest of greater accuracy in the measurement of that indispensable fluid on which millions of people depend for cooking, heating, and manufacturing processes, it was stated.

The new meter will be used as a standard to which other large meters can be referred. These, in turn, will keep record of the flow of the tremendous volumes of natural gas which are supplied at high pressure from distant fields to the Chicago distribution area, according to the Standards Bureau.

The meter is one of the "proportional" type, that is, only a certain definite percentage of the gas flowing in the main is diverted through the meter and measured. It may be operated under pressures up to 600 pounds per square inch, and at any given line pressure, the calculated safe maximum capacity is nearly 300 times the minimum at which the meter can be operated conveniently, it was stated.

Moreover, the indications of the meter are not affected by pulsations in the gas stream. Unlike most proportional meters the proportioning ratio may be varied from about 5 to 1 to about 60 to 1, using a special thermal method for indicating the actual ratio at any given time.

In commenting on this interesting cooperative undertaking, the Bureau's experts call attention to the fact that this meter appears to have overcome the faults (leading to rather inaccurate readings) of most proportional meters. When the Joliet meter was completed it was used in making 15 tests of an orifice meter (a meter in which the gas flows through an accurately cut hole in a plate or partition placed in the gas pipe), and it was found that the maximum departure from the average was about 0.4 per cent, and the average departure was only plus or minus 0.16 per cent.

These tests have been carefully checked and analyzed, the Bureau stated, and it seems probable that, with the exception of the determination of the specific gravity of the gas (which enters into the calculations), the effect upon the indicated rate of flow through the reference meter of uncertainties in the determination or regulation of any other factor would not exceed plus or minus five hundredths of one per cent—a remarkable result.

Determining Inflow Characteristics of Gas Wells

A METHOD for determining intake capacities under different well-head pressures from data descriptive of the "output" or producing characteristics of the wells has been developed by the United States Bureau of Mines, Department of the Interior. A recently issued report gives the results of tests to determine the output and input characteristics of six natural gas wells in different parts of the Texas Panhandle field which were made available for study through the cooperation of a number of producing companies.

Operators in the Panhandle field of Texas have been confronted with the problem of handling supplies of gas above ground which were in excess of market requirements, and proposals have been made to return this excess gas to the reservoir. However, information regarding the intake capacities of gas-well systems was meager, and in projects involving the flow of gas into porous rock reservoirs, costly trial and error methods were necessary to determine intake capacities of the gas wells.

In order that the return of gas to the formations might be accomplished on a better engineering basis, output characteristics of the six gas wells under test were determined in accordance with the Bureau's method of using back-pressure data; described in Bureau of Mines Monograph 7 which was published a few months ago in cooperation with the Natural Gas Department, American Gas Association. Tests of the intake characteristics of the six natural gas wells described in the present report were made for comparison under similar conditions of pressure and flow stabilization, and rates of delivery into the well were plotted on logarithmic paper against corresponding values of the square of the delivery pressure at the face of the sand minus the square of the formation pressure. The slopes of the two lines representing the output and input characteristics of a well generally were approximately the same. The output delivery rates generally were 4 to 7½ per cent greater than the rates at which gas was delivered into the respective wells.

The close relationship of well characteristics that has been determined furnishes a means of calculating the gas delivery into a well based upon out-flow data, provided the shut-in formation pressure is known. This method should provide a means whereby operators will be able to plan gas-injection programs more effectually to conserve natural gas resources.

Report of Investigation 3303, Comparison of Output and Intake Characteristics of Natural Gas Wells in the Texas Panhandle Field, by M. A. Schellhardt and E. L. Rawlins, may be obtained without cost upon application to the Information Division, U. S. Bureau of Mines, Washington, D. C.

U. S. Bureau To Gather Data on Living Costs

THE regular quarterly Autumn collection of retail prices by the United States Bureau of Labor Statistics for purposes of computing changes in the cost of living will be made as of September 15, Commissioner Lubin has announced. The Bureau collects retail prices of commodities and services that are of major importance in the budgets of wage earners and low-salaried workers.

For more than twenty years, utility companies have cooperated in this service. Rate changes for gas for residential use are reported by mail on forms provided by the Bureau, by sixty-five companies located in fifty of the larger cities of the United States.

It is important to the companies that they insure that the Bureau shall have accurate and timely data. In view of the great value to the utility industry of the data being collected by the Bureau of Labor Statistics, as a result of its regular surveys of cost of living, the utility companies in the cities covered, should request their staff to continue their cooperation with the Bureau.

Gas-Fired Tempering Furnaces Break Sales Records

Furnace that is breaking sales records in its field following the introduction of convection gas heat

THE effect on the sales of an industrial equipment manufacturer when furnaces are redesigned and gas is adopted for heating, was pointed out recently by Winfield Foster of The Peoples Gas Light and Coke Company, Chicago, Illinois. Mr. Foster calls attention to the experience of the Lindberg Steel Treating Company of Chicago, the largest steel-treating establishment in the country.

For years the opinion was widely held that "air tempering" furnaces could not be heated satisfactorily with gas, with the result that in heat-treating circles electricity made such headway as to cause considerable concern among industrial gas manufacturers. It was held that because of the high temperature of gas combustion excess heat would build up during combustion and cause overshooting of the temperature level. During recent years however, considerable progress has been made in the study of convected gas heat, and the old objections to gas for this method of heating were found to be baseless. In fact it was found that convected gas heat has some very decided advantages over heat from electric elements for this process.

The Lindberg Steel Treating Company formed a subsidiary to manufacture tempering furnaces using electric heat. Sales were moderate. In 1935 convected gas heat was applied and almost immediately the sales curve sprang upward. The recirculating convection gas-heated furnace has scored a bulls-eye and is securely entrenching gas in heat-treating plants in all parts of the country. Control of temperature is positive at all stages of the tempering cycle and in many localities it is reported that the operating cost is but one third of that experienced with the old method of heating by electricity.

"The few months that this furnace has been available have probably broken all records for the sale of a new heating unit," said C. H. Stevenson of the Lindberg Engineering Company. "Through the use of gas as a fuel it has made possible economy in tempering operations never before possible."

Utilitopia

(Under this heading, *The Architectural Forum* for July contains the following discussion of the model home developments in swank Boston subdivisions featuring appliances of opposing gas and electric interests.)

LONG linked comfortably together in the average U. S. house, gas and electricity have finally acquired complete independence of one another through the inventiveness of the appliance makers. This independence the manufacturers of Boston's two prime household aids were last month both out forcibly to demonstrate These utilities were ready to popularize their services by sponsoring whole developments of model houses. Scene of this unusual demonstration was suburban Boston's prim and leafy Chestnut Hill section, where developers offered houses bursting with gadgets to prove the contentions of their respective sponsors.

Two months ago the Boston Consolidated Gas Co., a Koppers unit, announced its sponsorship of a dozen houses on the Brookline side of the area, nearest Boston. These houses it proposed to equip with every gas appliance, to promote as "All-Gas" homes. Upon Homer T. Brown, for ten years a builder of fine houses in and about Boston, the gas company bestowed its sponsorship. Besides his good name, Realtor Brown offered access to a choice site, Brookline's old Chestnut Hill golf course. The dozen houses, Colonial and slate-roofed, Architect Raymond Stowell was retained to design.

Same time that Sales Promoter Cadwallader opened the first of his houses to the public, Consolidated's colleague, the Edison Electric Illuminating Co., unveiled a like plan for electricity. In cooperation with a Newton realtor, Edison's promotion manager, Julius Daniels, proposed to build 28 "All-Electric" houses, also on Chestnut Hill. Developer for Edison is Clifford V. Miller whose firm Homes, Inc., has built approximately 60 houses in Newton's Cotton Street, Bruce Lane and Clements Road developments. Realtor Miller offered the Edison company a fine site in the former Harry F. Stimpson estate, opposite that of Drugman Louis K. Liggett. Architect John H. Parkinson was chosen to design the houses.

With ten Consolidated houses complete (eight were sold) and eleven Edison houses nearly complete last month, real estate pages burgeoned with advertisements and press releases from both companies. Both developments featured houses in the $15,000 price class. In contrast with Consolidated's twelve Colonials, Edison's 28 were advertised as of "every desirable design." Lay crowds and builder-visitors alike came not so much to see their design, however, as to compare their equipment for heating, air conditioning, refrigeration, cooking and water heating, in each case fueled by a different power. A series of simple, hard-headed competitive moves by the agencies most concerned had provided for all Boston the rare opportunity to investigate the best developments in both fields.

Record Natural Gas Well Drilled in Michigan

THE Wolverine Natural Gas Corporation completed on August 5 probably the largest natural gas well ever drilled in Michigan, according to an announcement by Paul B. Whitney, president of the company. The well is known as Loughlin No. 2 in Belvidere Township, Montcalm County, in the Six Lakes gas field. It was drilled on properties acquired from the Gordon Oil Company.

The well is now under control with the last gauge at 105,000,000 cu.ft. per day. The previous record was also held by the Wolverine Corp.

New Jersey Public Service Promotes Accounting Executives

J. L. Conover

THE following promotions have been announced by Public Service Electric and Gas Company, Newark, N. J., effective August 1, 1936:

John L. Conover, acting general auditor, gas department;

Ormsby F. Potter, assistant general auditor, gas department;

Herbert E. Cliff, assistant to general auditor, gas department.

Mr. Conover will become general auditor, gas department, on December 31, 1936, when William H. Pettes, the present general auditor, retires from service.

H. E. Cliff

Mr. Conover entered the employ of Public Service Corporation of New Jersey on March 16, 1904, as a clerk in the comptroller's office. He resigned in 1906 because of poor health, but rejoined Public Service the following year as a meter reader. In the next seven years he served successively as collector, ledger clerk, chief clerk, in the comptroller's office and then as statistician. In May, 1914, he was appointed assistant general auditor, gas department.

Mr. Conover has participated in Accounting Section activities for many years and has made notable contributions in machine accounting work. He served as chairman of the Accounting Section during the 1929-30 Association year, and is now a member of the Advisory Committee. He is a past president of the New Jersey Gas Association.

In October, 1930, Mr. Conover was awarded the Charles A. Monroe Award "for the most outstanding contribution during the year in the general interest of the gas industry." The award was made because of his accomplishments for Public Service in the field of machine accounting.

Mr. Potter began his career in the gas industry on September 14, 1894, with The United Gas Improvement Company in Paterson. Between 1894 and 1897 he held the following positions: combination clerk, meter reader, collector and salesman. In February, 1897, he became a bookkeeper and was promoted to head bookkeeper in June, 1900. In 1903 he was made traveling auditor, and in September, 1910, was appointed assistant to the general auditor, gas department, which position he has held up to the present time.

Mr. Potter is a past president of the New Jersey Gas Association. He is active in fraternal and civic organizations.

Mr. Cliff entered the employ of Public Service Electric and Gas Company on October 1, 1924. He was appointed auditing assistant on February 1, 1928.

Mr. Cliff has been active in both national and state Gas Association affairs. He has served as chairman of several committees of the Accounting Section of the American Gas Association, and is at present a member of the Managing Committee. He recently was selected by the Nominating Committee as the nominee for vice-chairman of the Accounting Section for the coming year. He was president of the New Jersey Gas Association during the 1935-36 Association year.

New Pipe Line Construction Started in Pennsylvania

CONSTRUCTION of a 113-mile natural gas pipe line which will give employment to 1,000 workmen and will cost approximately $1,500,000, is to be started immediately through Clarion, Jefferson, Elk, McKean and Potter counties in Pennsylvania by the Peoples Natural Gas Company, Pittsburgh, it has been announced by J. French Robinson, president of the company.

The line will start near Limestone in Clarion County and will connect with the western end of the New York State Natural Gas Company's line in Hebron Township, Potter County, Pa. The line will be 12¾ inches in diameter and will have a capacity of 26,000,000 cubic feet of natural gas a day. It is to be completed by Nov. 15, according to L. H. Favrot, vice-president of Williams Brothers Company, Tulsa, Okla., the contractors.

The 113 miles of pipe will be purchased from the Jones and Laughlin Steel Corporation, Pittsburgh, who will begin shipments on August 14. The Dresser Manufacturing Company, Bradford, Pa., has been awarded the contract for pipe couplings.

This will be the largest natural gas pipe line construction in western Pennsylvania for a number of years and one of the largest recent jobs in the United States, according to Mr. Robinson.

"This new gas supply will be available to all customers on the lines of the company as far east as Altoona. The line is being built in anticipation of the future industrial and population growth of Pittsburgh and western Pennsylvania, so that gas supplies can be kept more than ample," said Mr. Robinson.

While the line will bring gas mainly from Potter and Tioga counties, the company intends to develop possibilities for additional sources of supply en route.

Affiliates of the Peoples Natural Gas Company have been developing the Potter and Tioga county gas fields since 1930 and have engaged in extensive drilling operations with the development of a number of wells producing gas with high heat value.

Gas Heat for Air Conditioning

"Gas heat—best for winter air conditioning" is the message proclaimed by The Laclede Gas Light Company's decorated truck, which was one of the eight floats in a parade that officially opened Warm Air Heating and Air Conditioning Week in St. Louis, Mo. D. J. Fagin, Laclede sales engineer, whose job it is to contact heating contractors and engineers, is shown beside the truck

Affiliated Association Activities

Pacific Coast Gas Association

H. M. Crawford

THE forty-third annual convention of the Pacific Coast Gas Association was held at the Fairmont Hotel, San Francisco, during the week of August 25.

The program of the convention was built around the theme "Gas Marches On." Each day's session began with a short pseudo-broadcast in the March of Time manner, and at the close of the convention the year's activities of the Pacific Coast gas industry were reviewed in the same way. This, together with the highly inspirational character of the program from the opening remarks of President Crawford to the closing remarks of President-elect James F. Pollard, made this one of the most optimistic gas conventions ever held on the Pacific Coast.

The American Gas Association was represented on the program by A. E. Higgins, secretary of the Natural Gas Department, and F. E. Vandaveer of the Los Angeles Testing Laboratory.

J. F. Pollard

James F. Pollard, president of the Seattle Gas Company, was elected president of the Association and Norman R. McKee, vice-president of the Southern Counties Gas Company, was elected vice-president. Directors re-elected were H. L. Farrar, president of Coast Counties Gas and Electric Company, and W. J. Bailey, president of the Day and Night Water Heater Company. New directors elected were R. A. Hornby, vice-president of Pacific Lighting Corporation, and C. R. Graham, secretary-treasurer of Jas. Graham Manufacturing Company. D. G. Martin, general auditor of Pacific Gas and Electric Company, was re-elected as treasurer.

In addition to being re-elected as a director of the Association, Mr. Bailey was re-elected chairman of the Manufacturers' Section of the Pacific Coast Gas Association. Also re-elected were other officers of the Manufacturers' Section including Mr. Graham as vice-chairman; R. G. Logue, Ward Heater Company, and W. W. Norton, Electrogas Furnace and Mfg. Company, chairman and vice-chairman respectively of the Furnace Division; W. C. Gaffers, Gaffers & Sattler, and Geo. Hammer, Hammer-Bray Co., chairman and vice-chairman respectively of the Range Division; R. C. Hoyt, Hoyt Heater of No. Calif., and W. R. Smith, Continental Water Heater Co., chairman and vice-chairman respectively of the Water Heater Division; and A. J. Hartfield, Pacific Gas Radiator Company, and J. S. Andrews, Andrews Heater Company, chairman and vice-chairman respectively of the Space Heater Division.

Michigan Gas Association

THE following officers were elected for the coming year at the closing session of the annual convention of the Michigan Gas Association held at Mackinac Island, Michigan, July 6-8: President—Newell E. Loomis, Detroit City Gas Co., Detroit; Vice-President—Howard Pett, Consumers Power Co., Lansing; Secretary-Treasurer—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids.

Mr. Loomis was first employed by the Detroit City Gas Company in 1908 as stenographer in the new business department. Later he became secretary to the sales manager, secretary to the assistant general manager, and in 1914 was promoted to executive ranks as superintendent of coke sales. In 1923 he was made assistant sales manager and in 1932 merchandise sales manager, which position he now holds. Mr. Loomis has served on many committees of the Michigan Gas Association and the American Gas Association.

Empire State Gas and Electric Association

THE two-day annual convention of the Empire State Gas and Electric Association will be held at Saranac Inn, New York, on Thursday and Friday, October 1 and 2. Business sessions will occupy the two morning periods with recreation and amusement in the afternoon and evenings.

A splendid program will include an address by the president, E. R. Acker, with addresses also by the presidents of the American Gas Association and the Edison Electric Institute. An important paper on "The Gas Business and Competition" will be presented by J. P. Haftenkamp, vice-president, Rochester Gas and Electric Corporation. Alfred H. Schoellkopf, president of the Niagara Hudson Power Corp., will speak on "Rural Electrification."

Convention Calendar

SEPTEMBER

7-12 Third World Power Conference
Washington, D. C.

7-12 American Chemical Society
Pittsburgh, Pa.

18-19 Public Utilities Association of West Virginia
The Greenbrier Hotel, White Sulphur Springs, W. Va.

21-24 American Transit Association
The Greenbrier Hotel, White Sulphur Springs, West Va.

OCTOBER

1-2 Empire State Gas & Electric Association
Saranac Inn, N. Y.

2 Operating Division, New England Gas Association
Hotel Bond, Hartford, Conn.

3-6 British Commercial Gas Association
Bath, England

5-9 National Restaurant Exposition*
Chicago, Ill.

15 Accounting Division, New England Gas Association
Narragansett Hotel, Providence, R. I.

18-19 Accounting Section, Wisconsin Utilities Association
Lawsonia Hotel, Green Lake, Wisc.

19-23 American Society for Metals, National Metal Exposition*
Cleveland, Ohio

25-30 AMERICAN GAS ASSOCIATION CONVENTION
Municipal Auditorium, Atlantic City, N. J.

25-30 Association of Gas Appliance and Equipment Manufacturers Convention and Exhibition of Gas Appliances and Equipment
Atlantic City, N. J.

Wk. 26 National Hotel Exposition*
New York, N. Y.

* Includes exhibit sponsored by A. G. A. Industrial Gas Section.

NOVEMBER

9-12 American Petroleum Institute
Stevens Hotel, Chicago, Ill.

DECEMBER

7-8 National Industrial Council—National Association of Manufacturers
Waldorf Hotel, New York, N. Y.

9-10 National Association of Manufacturers
Waldorf Hotel, New York, N. Y.

Many of the problems revolving around the Social Security Act and employee benefit plans are expected to be clarified in a discussion by M. B. Folsom, treasurer, Eastman Kodak Company, an international authority on these subjects. Other items on the program of particular interest to the gas industry include: "Legal Phases of Commission Regulation," by Colonel Charles G. Blakeslee, formerly counsel for the Public Service Commission; "Accounting Regulation," by H. C. Davidson, secretary, Consolidated Edison Co. of New York; "Employee Training and Public Relations," by H. C. Theurk, Utility Management Corporation. Samuel Botsford, managing director, Buffalo Chamber of Commerce, will close the meeting with a talk on "New York—The World's Greatest Market."

Entertainment features include a handicap golf tournament, Thursday afternoon, a dinner dance that evening, and boat rides, putting and bridge for the ladies.

Charles A. Tattersall, assistant vice-president, Niagara Hudson Power Corporation, is chairman of the committee in charge of convention arrangements.

Public Utilities Association of West Virginia

THE annual meeting of the Public Utilities Association of West Virginia will be held at The Greenbrier Hotel, White Sulphur Springs, September 18 and 19. The Executive Committee set the meeting this year immediately preceding the American Transit Association meeting, which will be held at The Greenbrier beginning September 21. The program committee will make a report at a later date on the details of the meeting.

Publication of Minerals Yearbook Announced

PUBLICATION of the "Minerals Yearbook, 1936," is announced by the United States Bureau of Mines, Department of the Interior. The volume contains 69 chapters, 154 illustrations, and 1,136 pages, and provides in convenient form a comprehensive and accurate record of economic developments and trends in the mineral industries of the United States during the year 1935. In addition to a presentation of the fundamental statistics of the production and marketing of a hundred commercial minerals, world production of minerals and the economic aspects of international mineral policies are reviewed.

The mineral production of the United States in 1935 was valued at $3,688,000,000, an increase of nearly 11 per cent from $3,325,100,000 in 1934.

The mining industry, as well as other types of business activity, continued during 1935, the vigorous recovery evident in 1934, it is stated in a review of the mineral industry which opens the volume.

John L. Wilkie Is Dead

JOHN L. WILKIE, chairman of the board of the Central Hudson Gas and Electric Corporation and a member of the law firm of Gould & Wilkie, 1 Wall Street, New York City, died July 22. Mr. Wilkie was seventy-one years old, and his death followed a long illness.

He was born in New York City, the son of David and Christina Wilkie, and was graduated from the College of the City of New York in 1884. Subsequently he attended Columbia University Law School, receiving his law degree in 1886.

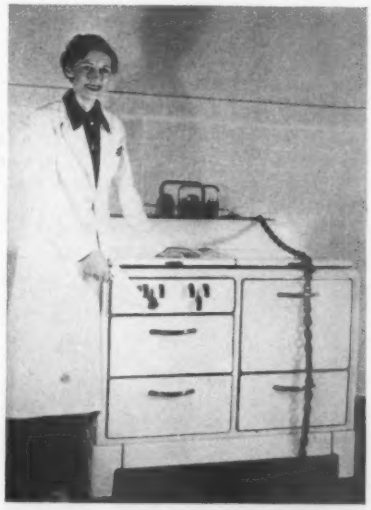
Early in his legal career he formed a partnership with the late Charles W. Gould and Lloyd McKim Garrison under the name Gould & Wilkie, becoming senior partner upon the retirement of Mr. Gould in 1916.

Early in the century he joined the late William R. Beal and his son, Thaddeus R. Beal, in the development of public utilities in the Central Hudson Valley, which resulted in the formation of the Central Hudson Gas and Electric Corporation. Mr. Wilkie also was associated as counsel to John Claflin, and assisted in the reorganization of his interests into the Associated Dry Goods Corporation Until recently, when compelled by illness to relinquish many of his activities, Mr. Wilkie was a director of the Bank of the Manhattan Company and of Lord & Taylor.

Mr. Wilkie was a trustee of the Institute of Musical Art and was instrumental in bringing about its affiliation with the Juilliard School of Music, of which he also was a director. His other interests included the New York Foundation, of which he was until recently a trustee, and the National Society for Prevention of Blindness.

In 1899 Mr. Wilkie married Edith Blake Brown, of Boston, who died in 1907. A son, John Wilkie, of Poughkeepsie, and a sister, Miss Sara Wilkie, of New York City, survive.

Wins Cooking Contest



Miss Albertine Berry, home economics director of Lone Star Gas System, Dallas, Texas, and winner of $300 first prize in national measured cookery contest sponsored by Robertshaw Thermostat Company, points her prize check to the padlock and chain which she used to illustrate dependability of oven heat control

John Gribbel, American Meter Head, Dies

JOHN GRIBBEL, chairman of the board of the American Meter Company, and a leading banker, manufacturer and civic leader of Philadelphia for many years, died Aug. 25. He was 78 years of age, and had resigned as president of the American Meter Company last June 18 to become chairman of the board.

Mr. Gribbel was born in Hudson City, N. J., and was educated at public schools there and at the College of the City of New York. He was in the banking business for a time, but in 1883 left it to join the Harris, Griffin Company, manufacturers of meters. In 1890 he became a junior partner in the succeeding firm of John J. Griffin Company, and became sole owner two years later on the death of Mr. Griffin. The company subsequently became the American Meter Company.

Mr. Gribbel was also president of the Tampa Gas Company, Tampa, Florida, and a director of many corporations, including the Cities Service Company.

He is survived by two sons, W. Griffin Gribbel and J. Bancker Gribbel, and two daughters, Mrs. W. W. Corkran and Mrs. J. A. McCurdy. His wife, the former Miss Elizabeth Bancker Wood of New York, died two years ago.

McCarter Medals

AT a departmental meeting, June 24, at which N. T. Sellman, assistant vice-president, presided, three employees of the Consolidated Edison Co. of New York were presented with McCarter medals and certificates for their outstanding work in life saving by use of the Schafer prone pressure method of resuscitation. The employees who were singularly honored were: John M. Cordova, John H. Ostrander and Edward F. Willig.

F. R. Barnitz, president of the Northern Union Gas Company, presented a McCarter medal and certificate to Louis Roos, an employee of the company, on June 28. Mr. Roos had performed an heroic act in reviving a person who had been overcome by gas.

Accounting Section

F. L. Griffith, Chairman H. W. Hartman, Secretary E. J. Tucker, Vice-Chairman

The Collection Coupon as a By-Product of the Addressograph and Billing Operations

By F. C. REEL

The Union Gas & Electric Company, Cincinnati, Ohio

MACHINE billing and the use of stub accounting have given rise to a four-part bill consisting of the customer's receipt, the cashier's coupon or posting medium, the ledger record, and a section used in connection with a collection notice. The latter is often spoken of as a "by-product" because its obtainment is readily accomplished by means of modern addressing and billing equipment. However, in giving consideration to the use of a four-part bill, question arises as to whether or not the fourth part, as a collection medium, is justified.

Generally this portion of the bill shows, in addition to the addressographed name, address and account number, only the amount of the bill. It may either be detached from the ledger section after billing or remain attached. In either case, if the account is paid in full within the specified payment period, the collection coupon is usually destroyed as its value other than as a collection medium is rather banal.

At the time collection of the unpaid accounts is started, the collection coupon is checked with the unpaid account and attached to a notice form which requests or calls attention to the unpaid amount. However, some companies use the collection coupon as a collector's field notice, the collector making the call as soon as the account becomes delinquent. Companies using the coupon with a form of "first notice" to the customer generally prepare the collector's field copy a few days after the "first notice" is either mailed or delivered.

Collection Coupon Effective

The effectiveness of the collection coupon in one company can be illustrated by showing the results obtained by them from the use of a machined four-part bill and the stub method of accounting. The records of this company show that approximately eighty-seven per cent of the accounts are paid within the specified payment period. It is estimated that of the remaining thirteen per cent, approximately two per cent are delinquent in such a small amount that no collection notice is forwarded or collection effort made. It is also estimated that about one per cent of the accounts are immediately sent out for collection, no notice being mailed or delivered to these customers because of their habitually delinquent practices. The total collection coupons used in conjunction with "first notices," therefore, is approximately ten per cent. However, as the collection portion of the bill is prepared for one hundred per cent of the accounts, there is a waste of approximately ninety per cent. It is interesting to note further that the number of collector's field collection notices prepared represents almost seven per cent of the total accounts. It follows, therefore, that approximately only three per cent of the collection coupons prepared are really effective in the collection of delinquent accounts. The authenticity of this latter percentage is possibly questionable, however, as some of the delinquent accounts would probably be paid whether "first notices" are used or not.

Contributed by the Customer Accounting Committee, R. B. Milne, Chairman.

Checking

Prior to mailing or delivery of the "first notices," they must be checked with the ledger record, correcting the amount appearing on the coupon where "on account" payments have been received. Other preparatory work, such as attaching the coupon to a collection form, must be performed. When the collection coupons are detached from the ledger record and maintained in a separate file and are not removed as the bills are paid, the checking of paid accounts under some conditions becomes a rather burdensome task.

The four-part bill, of course, requires four addressographed impressions. In the case of the automatic bill-printers, the elimination of the collection coupon would increase the production of these machines, in that the impression capacity would be applied to a three-part bill rather than to a four-part bill. This saving would approximate twenty-five per cent, although some leniency should possibly be considered by reason of the necessary re-timing of the machine. However, the larger companies with central addressing departments would probably be able to dispense with some addressing machines and the labor required for this operation. Other benefits in this connection would be the reduced cost in the replacement of addressograph equipment, lower depreciation and less floor space required. In addition there is also a saving of approximately eighteen to twenty per cent of the paper stock used in the bill, depending entirely on the size of the collection coupon.

There are times when the showing of additional data on the bill becomes necessary, but due to the limitations of the billing machine and the expense required to change the addressograph or printing equipment, the additional information is sometimes not properly displayed and is crowded into some unused portion of the bill. By eliminating the collection coupon and by not changing the present addressing equipment, this space could be used for any additional information that might be required, should such a plan be deemed advisable.

Certain types of billing machines require an extra printing operation to prepare the collection coupon. When used with this type of equipment it is estimated that the elimination of the coupon would increase bill production approximately five per cent. Due to the lesser number of printing and tabulating operations, the life of the billing machine would also be increased. From an estimate of one company, the elimination of the collection coupon would save sufficient operations to increase the life of their billing equipment almost eight per cent, or approximately one year. This is based on an estimate of the number of items printed on a four-part bill during the life of the present equipment and the number of like items eliminated by the use of a three-part bill. In replacing the present machines a lesser number would, of course, prove sufficient, thereby again making possible a reduction in investment, depreciation, labor, floor space, etc.

Production Economies

Increased production in billing proof should also become possible, as there would be one less section of the bill to correct where errors in billing occurred. Similarly, corrections in names and addresses would be made on only three sections instead of four, as in the case of spoilage of bills that necessitate the rewriting of new ones. The time for making such corrections would be reduced almost twenty-five per cent.

Some companies that have a penalty or discount incentive for prompt payment do not prove the correctness of the gross amount of the bills, as only the net amount is reported as sales. Generally the collection coupon shows only the gross amount, as that is the amount due at the time of sending the collection notice. Those companies that do not prove the amount of the gross billing and use a machined collection coupon have sometimes experienced collecting and receiving payments of gross amounts that were incorrect. Each such case necessitated further collection effort or the

satisfying of a disgruntled customer. The preparation of first collection notices from the ledger section of the bill which shows both the gross and net amount of billing would tend to eliminate this type of error.

A saving in time could be made in the adding of arrears and merchandise installment amounts to bills by eliminating the collection coupon. Here again the saving appears upwards of twenty-five per cent and is especially true where these items are posted to the bills manually.

As previously mentioned, the use of the coupons in question for other purposes than collection effort is somewhat limited, due to the lack of billing information shown. Some companies have attempted to use these to make an analysis for rate study purposes, but owing to the absence of information this has usually proved unsuccessful.

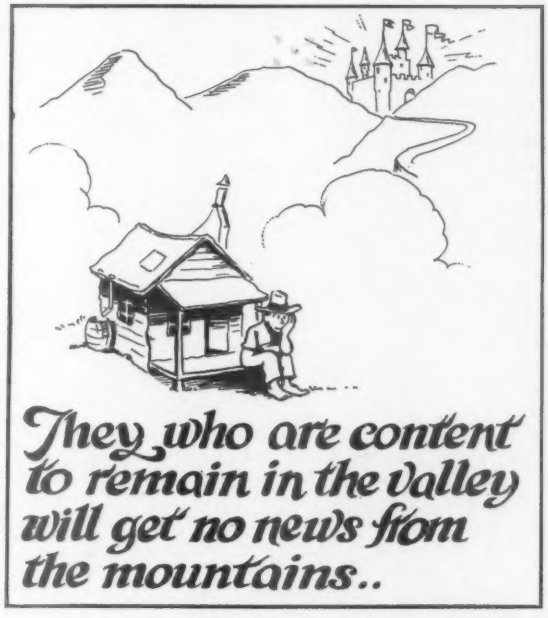
From information obtained from several companies using the four-part bill, the cost of producing the collection coupon is not charged to Collection Expense as it is generally accepted as being a "by-product" of the billing operation. The collection coupon should not be considered a "by-product," as seemingly it has been demonstrated that the direct and indirect costs of producing one hundred per cent of the coupons result in the use of not over ten per cent of them. Furthermore, if the number of delinquent accounts is sufficiently large to warrant the use of a machined collection coupon, then it would seem only logical that the cost of printing, addressographing, billing, billing proof and paper required to produce this coupon should be charged to Collection Expense, since the primary reason for its preparation is to further collection effort. In making this charge, the cost of producing one hundred per cent of the coupons should be used and not the cost of the number of coupons actually used in furthering collections. Similarly, this same cost should be used in making a comparison as to the cost of any substitute.

An adequate substitute to replace the collection coupon would be a type of delinquent notice form requiring the transcription of the name, address, account number and amount of delinquency. Additional labor and probably fan-fold typewriter equipment would be required to accomplish this expeditiously. A study to determine whether such additional costs would be less than the cost of producing the machined coupons and other costs of handling should, of course, be made to determine the warrantability of the three- or four-part form. It is believed that such a study would in many instances result in the discontinuance of the collection coupon, depending, of course, upon the individual company's condition and requirements.

Dissecting Customer Accounting

This Important Subject To Be Discussed at One of Five Luncheon Conferences at Convention

AND for the latest news from the heights, Accounting Section members of the Association must attend the Luncheon Conferences at the annual convention. Everything will be "off the record" and proceedings will not be published.



These conferences are now a fixture. They have become increasingly popular every year since their inception—and at the 1936 convention in Atlantic City they will be one of the major attractions for Accounting Section members. There will be five meetings instead of four, as in the past, and the attendance figures are bound to jump to a new high level.

One of the most popular of the Luncheon Conferences is that devoted to the ever-important subject of Customer Accounting. This year will be no exception.

Ask yourself these questions:

Are you interested in new ideas which will result in savings to your company?

Do you benefit from exchange of ideas?

Are you certain that your plan and procedure in handling customer accounting can't be improved?

After you have answered this "personal questionnaire," you will realize that this Customer Accounting Luncheon Conference is one that can't be missed. Headline subjects are down for consideration, and there will be plenty of action!

As an indication of the importance of this particular luncheon conference, here are a few of the subjects to be considered:

With management leaning toward inducement rates for service, is the stub or register plan the best?

Is it desirable to show meter number, location, and credit data on the addressing plate? Do the advantages offset the disadvantages?

Do addressing plates give assistance in computing State or Federal taxes?

What steps are taken in making review of customers' accounts for increases or decreases in consumption? Is the date the meter was installed given consideration?

Stub accounting—might not the industry investigate some of the methods used by finance companies for keeping a record of installment sales?

To sum up—the Customer Accounting Luncheon Conference will be "tops." Jot the date down now, Wednesday, October 28, 1936, and the place, Ritz Carlton Hotel, Atlantic City * * * AND * * * get your reservation in early. Further details regarding reservations to be included in subsequent issues.

It will be a trip to the heights—and you will profit greatly thereby!

By H. A. EHRMANN,
Consolidated Edison Co. of New York,
New York, N. Y.

Committee Reports

(From "The Story of the Pacific Coast Gas Association")

Among things that are essential are:

- An opening statement giving the purpose and scope of report.
- A description of apparatus and test procedure—if any.
- A clear and logical presentation of the data or material forming the basis of the report.
- A conclusion summarizing the opinion of the committee and the reasons therefor.

Among things that are non-essential are:

- Any report which does not contribute to the knowledge of the industry.
- Quotations from previous reports or from any accessible source. A reference is sufficient.
- Derivation of well-known formulae.
- Detailed answers to a questionnaire. They can usually be summarized.
- Lengthy expressions of personal opinion not supported by the data presented.
- Any other form of verbal padding not contributing to the argument.

Commercial Section

C. E. Bennett, Chairman J. W. West, Jr., Secretary F. M. Banks, Vice-Chairman

Highest Honors Go to Winners of National Gas Refrigeration Contest

VICTORS in the biggest and most successful refrigerator-selling contest ever sponsored by the American Gas Association Refrigeration Committee have been announced by B. H. Gardner, chairman of the committee. Awards amounting to $27,230 have been granted to the winners who have been declared the "leaders" in the contest. A total of 1,044 awards were granted in all. The leaders consist of gas companies and of individual members of sales forces who were ahead in refrigerator sales. Sixty companies shared in the awards.

The highest honors of the campaign were the eight "Swords of Merit," that will be presented to the eight companies who were at the top in their respective divisions. Sword winners were the Washington Gas Light Company, Washington, D. C.; Gas and Electric Appliance Company, Columbus, Ohio; Detroit City Gas Company, Detroit, Mich.; Cumberland and Allegheny Gas Company, Cumberland, Md.; Manufacturers Light and Heat Company (Ellwood City District), Bellevue, Pa.; North Penn Gas Company, Port Allegany, Pa.; Lynchburg Gas Company, Lynchburg, Va., and Broad River Power Company, Florence, S. C. These trophies were in addition to the highest awards granted to company winners.

Presentation at Convention

Presentation of the "Swords of Merit" will take place at the annual convention of the American Gas Association to be held this Fall in Atlantic City. Acceptance of the trophies won by competing gas companies in selling campaigns conducted by the A. G. A. Refrigeration Committee has become one of the outstanding ceremonies at A. G. A. annual conventions.

The refrigerator-selling contest just ended is the fourth of its kind to be conducted by the committee. The first contest, held in 1933 was called the "Ice Cube" contest, the second in 1934 was the "Go-Getter" or "Blue Vase" campaign, the third in 1935, the "Prosperity Cup" contest.

This year's drive, called the "1936 Leadership Refrigeration Campaign," was carried on during April, May and June. The "Sword of Merit" was chosen as a trophy, the sword typifying leadership not only on the part of the competing company, but leadership among sales persons. This is the second year that the Committee offered cash awards to individuals for their sales efforts.

The Refrigeration Committee has congratulated all contestants on the enthusiasm and zeal with which executives, management of companies, and the appliance sales forces entered the campaign. The success of the campaign is also a source of satisfaction to the committee because of its benefit to the whole gas industry, in view of the greatly increasing acceptance of gas refrigeration which is one of the prime results of its selling campaigns. Each campaign has been larger than its predecessor. Nearly 600 companies representing nearly 10,000,000 meters, participated in the "Sword of Merit" campaign.

The contest was conducted in collaboration with Servel, Inc., manufacturers of Electrolux refrigerators, and the committee gives high praise to that company for its promotional and advertising activities which were such important factors in making the campaign so successful.

B. H. Gardner, chairman of the Refrigeration Committee, holding one of the symbolic "Swords of Merit"

Company winners of awards standing second in the final results were: Kings Appliance Corporation, Brooklyn, N. Y.; Providence Gas Company, Providence, R. I.; Milwaukee Gas Light Company, Milwaukee, Wis.; Manufacturers Light and Heat Company, East Liverpool, Ohio; Southern Indiana Gas and Electric Company, Evansville, Ind.; Rosslyn Gas Company, Clarendon, Va.; Virginia Gas Distribution Corporation, Staunton, Va., and Arkansas-Louisiana Gas Company, Vivian, La.

Companies winning awards through standing third were: Consolidated Edison Company of New York; New Haven Gas Light Company, New Haven, Conn.; Minneapolis Gas Light Company, Minneapolis, Minn.; Springfield Gas Light Company, Springfield, Mass.; Birmingham Gas Company, Birmingham, Ala.; Natural Gas Company of West Virginia, Wheeling, W. Va.; Peoples Gas Company, Port Arthur, Texas; United Gas System, Sinton, Texas, and Manufacturers Light and Heat Company (Chester District), East Liverpool, Ohio.

Fourth place was gained by the following: Southern California Gas Company, Los Angeles, Calif.; Brooklyn Borough Gas Company, Coney Island, N. Y.; Hartford Gas Company, Hartford, Conn.; Arkansas-Louisiana Gas Company, Little Rock, Ark.; Central States Power and Light Corporation, Tulsa, Okla.; Manufacturers Light and Heat Company (Rochester District), Bellevue, Pa.; Tyler Gas Service Company, Tyler, Texas, and Virginia Gas Distribution Corporation, Waynesboro, Va.

Companies winning awards through standing fifth were: The Brooklyn Union Gas Company, Brooklyn, N. Y.; Public Service Electric and Gas Company, Newark, N. J.; Southern Counties Gas Company, Santa Ana, Calif.; Montana-Dakota Utilities Company, Minneapolis, Minn.; Manufacturers Light and Heat Company (Beaver Falls District), Bellevue, Pa.; United Gas System, Harrisburg, Texas.

THE 1936 Gas Refrigeration Contest is over and is now a matter of history. The record shows that the activity was a great success. The sale of gas refrigerators during the campaign period greatly exceeded the sale of such equipment during the same period in any previous year. In this fact the gas industry can take great pride and also renewed hope for the future. No contest can be successful without a great deal of hard work on the part of a great many people. And so in the contest just closed a large number of people have labored long and hard to enable the industry to write such a story of outstanding sales accomplishment. I welcome this opportunity of expressing my appreciation of these efforts.

First, a word of thanks to the members of the Gas Refrigeration Committee and to the Headquarters Staff for their contribution in the way of plans and promotional material that stimulated interest and endeavor and had much to do with the final success of the activity.

But our principal thanks should go to the great body of salesmen out on the firing line and to the loyal employees in other departments whose prospects to these salesmen resulted in such a large number of sales. In a battle the plans of the leaders are worthless without the devotion and faithfulness of every last private soldier, and so in a sales campaign, the most elaborate plans can produce no result without long hours of enthusiastic work on the part of the individual salesman with the order book. I feel that during the recent Refrigeration Campaign, the gas industry had a full measure of devoted effort from the sales departments of the companies registered, and from many employees in other departments as well. For all such efforts and for the very fine sales results obtained, I wish to express my thanks and appreciation.

B. H. GARDNER,
Chairman, 1936 A. G. A. Refrigeration Committee

---

and Gas and Electric Appliance Company, Caldwell, Ohio.

Companies that received sixth place awards were: Western United Gas and Electric, Aurora, Ill.; Ohio Fuel Gas Company, Mansfield, Ohio; Manufacturers Light and Heat Company, Bellaire, Ohio; Ohio Fuel Gas Company, Baltimore, Ohio; United Gas System, Childress, Texas, and Central Electric and Telephone Company, Columbus, Neb.

Seventh place awards went to the following: Metropolitan Utilities District, Omaha, Nebr.; Bridgeport Gas Light Company, Bridgeport, Conn.; Houston Natural Gas System, Houston, Texas; Manufacturers Light and Heat Company, Washington, Pa.; Keystone Gas Company, Inc. (Olean District), Olean, N. Y., and Piedmont Gas Company, Hickory, S. C.

Companies winning awards for standing eighth were: Elizabethtown Consolidated Gas Company, Elizabeth, N. J.; Manufacturers Light and Heat Company, Pittsburgh, Pa.; Natural Gas Company of West Virginia, Salem, Ohio; Lowell Gas Light Company, Lowell, Mass.; Hornell Gas Light Company, Hornell, N. Y.; Gas and Electric Appliance Company, Cambridge, Ohio, and Gas and Electric Appliance Company, Amherst, Ohio.

Special high cash awards were granted to three companies that made exceptional records in the "installations per 10,000 meters" class. These were the Washington Gas Light Company, Washington, D. C.; Providence Gas Company, Providence, R. I., and Springfield Gas Light Company, of Springfield, Mass.

In this campaign home service departments were offered awards for the first time: the winners were the home service departments of the Washington Gas Light Company, Gas and Electric Appliance Company, Providence Gas Light Company, Detroit City Gas Company and the Springfield Gas Light Company.

The individual cash awards went to 983 sales people and they included awards for monthly records and for total sales performance throughout the entire contest.

Average total installations for individual leaders in sales for the whole period of the campaign were 60 refrigerators. Awards ran as high as $100 for first position down to $10 for the tenth position. All final retail sales leaders who made a better-than-average record received either the first or second year gold Medal of Merit.

Individuals at the top—the hundred dollar winners—in their respective divisions were: J. F. Onley, Washington Gas Light Company, Thomas Green, Providence Gas Company; Larry A. Deabler, Hartford Gas Company; J. B. Billard, Cumberland and Allegheny Gas Company; Theodore B. Sills, Manufacturers Light and Heat Company (New Castle-Ellwood City District): W. R. Bales, Ohio Fuel Gas Company; E. V. Bowyer, Lynchburg Gas Company, and E. H. Enochs, Arkansas-Louisiana Gas Company.

Harrisburg Sets All-Time Sales Record

THE continuous increase during June, in the demand for modern gas appliances, sent The Harrisburg Gas Company's sales to a new all-time high for the first six months. They amounted to $92,000, a gain of $10,000 over the previous record, which was established in 1935. The month of May showed a sales volume of $30,000, an increase of 25 per cent for the month, and in June merchandise sales aggregated $20,000, an increase of 34 per cent, compared with June a year ago.

Louis C. Smith is president of the Harrisburg company and George L. Cullen is manager of the sales department.

Home Economics Group Holds Convention

Jessie McQueen

THE annual convention of the American Home Economics Association was held in Seattle, Washington July 6-9. The attendance of 1,500 consisted largely of such leaders and executives as: (1) Heads of Home Economics Departments in colleges and high schools; (2) State and city home economic supervisors and teachers; (3) State leaders of home demonstration work and their county agents; (4) Institution executives; (5) Homemakers; (6) Social workers; (7) Research workers; (8) Home service directors of utility companies; (9) Directors of home economics of business organizations; (10) Representatives of the Bureau of Home Economics, Washington, D. C.

In the exhibition of the convention, the American Gas Association, cooperating with the Pacific Coast Gas Association, presented an attractive exhibit described elsewhere in this issue of the A. G. A. MONTHLY.

Among the program subjects of interest to home service directors in attendance were: Standardization of Consumers' Goods; Housing Requirements; Status of Grade Labeling and Honesty in Advertising; Home Economics and National Interests; Consumer Interest in Current Economic Trends; Recent Research in Nutrition and Foods; Trends in Commercial Food Service; and all meetings of the section of "The House" in which equipment studies were particularly emphasized.

Home economists of the gas industry attending the convention were the following home service directors: Mrs. Beatrice Strege, Seattle Gas Company, Seattle, Wash.; Jean E. Mutch, British Columbia Electric Railway Co., Ltd., Vancouver, B. C.; Gladys B. Price, Southern California Gas Company, Los Angeles, Calif.; Katherine L. Rathbone, Southern Counties Gas Co., Santa Monica, Calif.; Ruth Kruger, Central Arizona Light & Power Company, Phoenix, Ariz.; Elizabeth Reger, Portland Gas & Coke Company, Portland, Oregon; Frances Peterson, Washington Gas & Electric Company, Tacoma, Wash.; Marion A. McKinney, Central Illinois Public Service Co., Mattoon, Ill.; Betty Boyle, The Gas Service Company, Kansas City, Miss.; Dorothy Shank, American Stove Company, Cleveland, Ohio; Jessie McQueen, American Gas Association, New York, N. Y.

Industrial Gas Section

Charles W. Gale, Chairman Eugene D. Milener, Secretary Ralph L. Manier, Vice-Chairman

Brooklyn Union Gas Co. Organizes for Commercial Sales

J. F. Quinn

AN important announcement was made August 1 by The Brooklyn Union Gas Company, Brooklyn, N. Y., concerning the organization of a new division of the new business department. On that date the sales of gas and gas equipment to customers other than straight industrial or domestic were placed under the jurisdiction of the newly created Commercial Division. Joseph F. Quinn was placed in charge of the division with the title of Commercial Sales Manager.

Commercial Load Recognized

Thus another large gas company officially recognizes the importance of the commercial gas load and proposes to do something about it. There has been a growing conviction for some time in industrial gas circles that there are latent possibilities for developing this class of business which is waiting to be systematically exploited. Experience in so many companies, however, has been that this class of customers, who in the aggregate actually account for a sizable portion of total gas sales, has been looked upon as being incapable of intensive development at a profit. Fraught with a feeling on the part of many industrial gas men that these accounts could not be handled the way straight industrial accounts are engineered and sold, and being entirely beyond the realm of domestic sales, commercial gas accounts have frequently occupied a sort of no man's land. The result has been in all too many cases that the full possibilities for load building with modernized gas appliances have not been realized.

In Brooklyn, the new Commercial Division will provide a specialized service to all commercial customers including institutions, hotels, clubs, churches, office buildings, restaurants, lunch rooms, tea rooms, lunch wagons, delicatessens, bakeries, butchers, grocers, beauty parlors, barbers, laundries, tailors, garages, gasoline stations; in fact to all business where service is rendered as contrasted with plants where manufacturing is carried on. The field is a big one and justifies the attention of men who can develop into specialists.

Joseph F. Quinn, the new manager of the Commercial Division, has been a leader in the movement for a fuller recognition by gas companies of the value to them of commercial accounts. As chairman of the A. G. A. Industrial Gas Section in 1935 and also through service on the General Commercial Committee, he gave the subject deep study and presented many facts to various groups showing how better service could be rendered to commercial customers with resulting load building. His experience in the gas industry gives him ample background for his new work, including as it does, employment with appliance manufacturers and a number of years as Supervisor of Industrial Sales with The Brooklyn Union Gas Company. Assisting Mr. Quinn as Supervisor, General Commercial Sales, is Charles C. Aspinwall, and Harold S. Birkett will be Supervisor, Commercial Heating Equipment.

Industrial and Commercial Gas Sales Increase

THE slogan, "The Trend Is to Gas, the Modern Industrial Fuel," that the Industrial Gas Section has been using in its national trade paper advertising for the last two years is more than a mere slogan—it is an exact statement of an important industrial condition that exists throughout the country.

Each year since 1933, the sales of manufactured and natural gas to industrial and commercial customers have regularly shown a greater percentage increase over the previous year than sales of electricity to industrial and commercial customers. For the first five months of 1936, the increase over the corresponding period of 1935 was 19.2 per cent for manufactured gas and 21.5 per cent for natural gas. The weighted average increase for the two was 21.3 per cent. This compares with an increase of 15.0 per cent in the sales of electricity to all industrial and commercial customers for the first five months of this year, compared with the first five months of last year, according to the latest published figures.

These figures for gas are not only important in themselves, but they are doubly important when it is realized that they clearly indicate that the industrial departments of gas companies were successful in retaining substantially intact, during the depression, their industrial and commercial connected loads and have added to these connected loads since the upturn began. Also they are most important because, during that period, the economies that have been worked out in scores of industrial and commercial gas applications have been applied in thousands of places of business. These savings have been overcome and sufficient additional business has been secured to make possible the increases noted.

Gas has entrenched itself in industry as it never had before. Plant officials and production men are conscious of the fact that on the average, they are getting more effective work out of a cubic foot of gas than ever before. Furthermore, the many improvements in industrial and commercial gas utilization and new uses in these fields that have resulted from constant research and development are progressively fortifying gas in places where heat is used to make a profit.

Gas Replaces Oil at U. S. Rubber Plant

GAS supplied by the Public Service Electric and Gas Co. of New Jersey has recently replaced oil for heating the large lead melting kettles at the United States Rubber Products Company's Passaic plant, which is the largest rubber hose manufacturing works in the country. As a result of the change in fuels, consumption of gas at this plant will be increased from about 500,000 cubic feet per month to more than 2,000,000 cubic feet.

FIRST FIVE MONTHS OF 1936

Per Cent Increase in Sales to All Industrial and Commercial Customers

	Jan.	*Feb.*	*March*	*April*	*May*	*Summary*
Manufactured Gas.....	18.3	17.7	22.7	19.4	19.5	19.2
Natural Gas.....	19.3	29.1	17.3	21.4	18.2	21.5
Weighted Total, Mfr. and Nat. Gas.....	19.2	27.9	17.9	21.1	18.4	21.3
Electricity	13.4	13.4	15.3	15.0	17.9	15.0

Exterior and interior views of converted 1,000 KW continuous enameling furnace, Granite City, Ill., the first to be converted to gas hot tubes following development fostered by the Committee on Industrial Gas Research

GOING AHEAD

WITH INDUSTRIAL GAS

The Fred Harvey kitchens serving the restaurants in the great Cleveland Terminal have made a clean sweep of it and gas cooking equipment has replaced all the much heralded "modern" apparatus formerly used. The manager says he now knows what really up-to-date equipment looks like and how it works.

A recent survey shows that practically all the chain food counters, chain quick-lunch stores and chain soda fountains use gas almost exclusively for their small counter cooking. There's a reason. Those fellows demand instant service and good looks from their equipment and the assurance that they can make a profit using it. Have you noticed how many restaurants are changing to the small glass coffee brewers? Everybody says they make swell coffee. Despite an unfavorable start, gas has copped this field with those snappy little stoves that will brew two, three or six containers at one time.

Word is getting around the factories that the smart thing to do is to change their operations to gas. Ask some furnace manufacturers what effect this is having on the percentage of their equipment sales that are gas.

One manufacturer has installed an assembly track for gas dehydration summer air conditioning machines. That's progress.

The rush by the steel companies to put in the new gas hot tube, prepared atmosphere, sheet annealers has assumed the proportions of a stampede. Chances are the fancy body on your new car was fashioned from sheets annealed in these "covers." Also those good looking new gas ranges.

While speaking of gas hot tubes, they are breaking the hearts of some people the way they are replacing heating elements in enameling furnaces.

October will be a busy month for Karl Emmerling's Display and Contact Committee. What with the large cooperative exhibits by manufacturers, local gas companies and the Industrial Gas Section at the National Metal Exposition, Cleveland, National Restaurant Exposition, Chicago, and the National Hotel Show, New York. Incidentally the group gas exhibits at the Metal Show and the Hotel Show will again be the largest of any exhibits at these shows.

There's lots of meat in that Industrial Gas Section program for the Atlantic City Convention. The boys will be there from all over the country with new ideas, so the discussions should be worth being in on. Don't miss them.

Technical Section

F. A. Lydecker, Chairman H. W. Hartman, Secretary Martin I. Mix, Vice-Chairman

A Gauge and Method for Determining Main Leakage

By GEORGE E. WHITWELL

Long Island Lighting Co.,
Bay Shore, N. Y.

A MODIFIED differential gauge simple to construct and operate together with a method of leak detection requiring no compressor and minimizing inconvenience to consumers has been in use for sufficient time to demonstrate its practicability. To date over 175 miles of equivalent 3-inch main and roughly 9,000 services have been tested by this method with satisfactory results.

The crew not only conducts the leakage survey but also inspects the company property in consumer's premises in addition to making minor repairs such as repairing or changing leaky meter cocks and fittings, regulators, repairing leaking curb cocks, drip riser or blow off cocks, and line valves. The isolation and definite location of the leaks in mains and services plus the repair of minor leaks by the survey crew cuts the cost of repairs by the maintenance crew. Not only does a leakage survey determine the extent and approximate location of leaks but many times losses in the form of blowing house regulators in temporarily unoccupied houses and unauthorized diversion are found. Corroded services, mains, drip riser and fittings; leaky threaded joints and fittings, cocks, main clamps, gasketed pipe couplings, valves and porous pipe and fittings have been found to be guilty in contributing to the unaccounted-for gas.

Former Method

Prior to four years ago the method used by an eastern gas company in determining leakage on a high pressure suburban transmission and distribution system was to isolate the main on a given street or in a section, particularly in the sparsely or seasonally populated sections, by valving or blanking off, setting a recording high pressure gauge on a drip riser, service or tap, introducing 80-90 lbs. air pressure after taking the necessary precautions and recording the pressure drop, if any, over a period of hours thus enabling the leakage calculation to be made. This method was used during daylight hours where lengthy interruptions in service would not inconvenience consumers and in more densely populated areas the testing was conducted during the night at the most auspicious time of the year. The necessity of a compressor plus the nuisance of purging mains and services was expensive compared to the value of the information obtained. The extent of the leak determined the duration of the test and often the leak could not be even roughly traced due either to its small magnitude or the time involved in its detection. These disadvantages led the author to develop the sensitive gauge and method described.

The gauge consists of a glass U-tube, both legs of which are suitably connected to a continuous steel pipe fitted with a lubricated plug cock between both sides of the U-tube and another at one end of the pipe. The pipe is ¾" steel with welded joints constructed to serve as a support for the U-tube, the cocks being located in a convenient operating position. (Fig. 1) The U-tube is of extra heavy glass tubing capable of resisting 60 lbs. pressure and is equipped with a conventional scale reading in inches. The tube should be filled to zero scale reading with water or any other suitable liquid of known gravity before assembling and the gauge always kept in a vertical position. A ⅜" welding hose 15-20' long serves to connect the gauge to the main through a drip riser, service or main tap permitting the gauge to be in a position most convenient for observation.

Operating Principle

The principle of operation is that when a gas under pressure is introduced into the gauge with gauge control cock C and gauge differential cock B open, no change in differential in liquid column is obtained, for equal pressures are on both legs. If differential cock B is closed, thus locking gas under the original pressure on side N of the gauge and there is a change of pressure on side M then the rate of pressure change in inches of water or other liquid can be obtained by timing the change in differential of the liquid column.

Assume that Fig. 2 represents a section upon which the test is to be conducted. While the gauge operator is connecting the gauge to drip riser cock W (Figs. 1 and 2) and testing gauge and connections, the other members of the crew are shutting off meter cocks in the section. The gauge is tested by opening differential cock B, gauge cock C, and riser cock W and then closing riser cock W and differential cock B and then observing the change, if any, in water column during a 10-minute interval. If no change in liquid level is detected, gauge cock B and riser cock W should be opened in the order named, but if a differential is obtained the leak on the gauge or connections should be repaired. The line valve box covers are lifted and inspected by smell for gas and any leaks should be repaired before testing. When notification is complete and leaky valves repaired, line valve X (Fig. 2) is closed, riser cock W opened, differential cock B closed and the differential if any, is noted after 10 minutes of testing. Assume that a 2.20" of water column differential is obtained indicating a gas leak somewhere in the section under test. Line valve Y is then closed and no pressure drop is noted after again testing for 10 minutes revealing that the leaks exist beyond line valve Y. The gauge is then relocated on the cellar end of the service pipe of house 18, service meanwhile being restored to the previous section.

Line valve Y is opened and closed and a 10-minute test of the section on 1st. Avenue shows a drop of 4.96" in 10 minutes. Curb cocks to houses 15, 14, 13 and 11 are closed and opened successively, a 5-minute test made after closing each still shows a 2.48" drop. On closing curb cock to house 8 a drop of only 1.80" is secured indicating that a leak exists between curb and meter cocks. This curb cock is left shut off and the procedure continued until a leak is detected by odor in the curb box of service to house 7. After tightening the leaky core and testing with the service cock open a drop of 1.50" still exists indicating the core leakage to have been at the rate of .60" in 10 minutes. Closing and opening this and the remaining curb cocks except 18 which when closed shows no drop, gives test results of 1.50" in 5 minutes indicating that the leaks exist in the main or between the main and some curb cocks. Curb cock to 8 and line valve Y are opened and service re-established. Barring, close observation of vegetation or other means are then resorted to in locating the leaks. If severe leakage occurs on long lines where no valves are available for isolating leaking section, cutting and blanking with subsequent testing of the divided sections may be resorted to.

The differential gauge should be located so as to have the entire gauge in either sun or shade for a short time with all cocks open to enable temperature equilibrium to be attained to avoid introduction of a possible slight error should one leg of the gauge be at a higher temperature than the other. It has been found that the use of a heavy canvas hood over the gauge at all times is good precautionary practice in

maintaining even temperatures. A crew of 3-5 men, depending on the extent of the section to be tested, soon becomes accustomed to the routine, the gauge operator being party chief who also draws the sketch and records the data on appropriate forms. A system of signals between the gauge operator and his assistant, who operates the line valves and curb cocks, facilitates the work. The remaining men suspend and restore service, take pipe measurements and make minor repairs. More complicated sections than Fig. 2 may be quickly tested depending upon the nature of the territory and the ingeniousness of the chief. The testing of low pressure districts requires the same procedure except that close observation and reading of the gauge using small differentials are required. When valves are inconveniently located bagging off the main with two bags and keeping the intervening space filled with water through a nipple may be resorted to.

In case the line valves are gate valves the stuffing boxes are inspected and tightened or repacked if an odor of gas is detected in the valve box. The line valve is shut off after preparing the section for test and if the differential gauge does not show a noticeable drop in 5 minutes gas is bled out of the line through a lubricated cock teed into the gauge connecting hose assembly at the drip riser until a slight drop in pressure is noted on the indicating pressure gauge. The differential gauge is again turned on and if any increase in pressure is observed the line valve is reopened and retightened and the test made again. Should this fail to render the valve tight the valve discs should be repaired or in the case of low pressure work bagging resorted to.

The work can be accomplished at an average rate of about 280′ of pipe per man hour. Rates of work may vary from roughly 100′ to 550′ of pipe per man hour depending upon the distance traveled, difficulties encountered in locating valves or curb cocks, volume of minor repairs handled or delay of test due to consumers needing gas to complete a task.

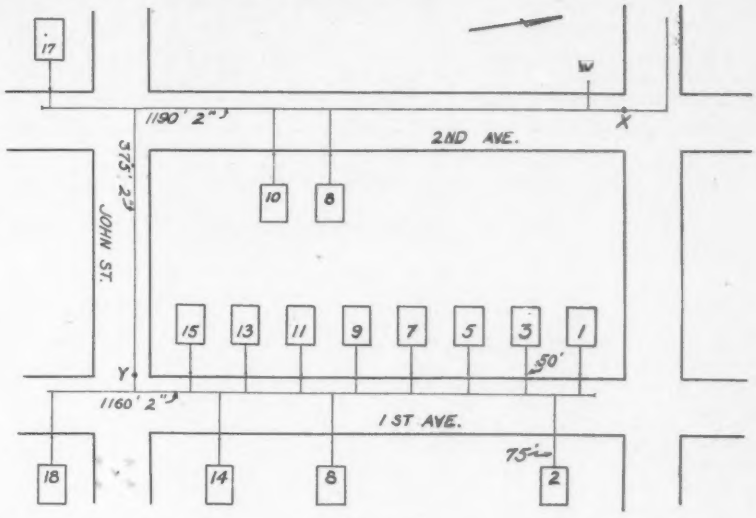


Figure 2

The additional equipment carried by the ton and a half canopy-type truck includes the various cock and valve keys, picks and shovels, short lengths of ¾" pipe, sledge hammers, valve repairing equipment, meter gaskets, regulators, regulator servicing equipment, danger signs, an assortment of pipe fitter's tools, fittings and cocks, a 100′ tape, drafting implements for making sketches, a stop watch, dip needle, flashlights and maps.

Calculating the leakage at standard conditions per equivalent mile of 3" per unit of time at any pressure base can be done in the conventional manner knowing the sizes and lengths of pipe under test, ground temperature, gas pressure at time of test, barometric pressure, and pressure drop in inches of water or fraction thereof (.01" drop in 10 minutes equals .00217 lbs. drop per hour). For practical purposes the ground temperature is considered a constant for the season of the year and the barometric pressure is disregarded, errors in pipe measurement and the possible volume occupying presence of drips, gums or dirt being of greater magnitude.

Measuring differentials across various gas conductors such as high pressure purifiers, baffled drips, bends and meters can be accomplished by attaching another hose on the plugged end of the differential gauge. In the case of high or low differentials nonvolatile liquids of suitable gravity may be used. Pulsations in lines near compressor stations may be measured with the gauge as used in main testing provided the amplitude is not too great for the type of liquid used.

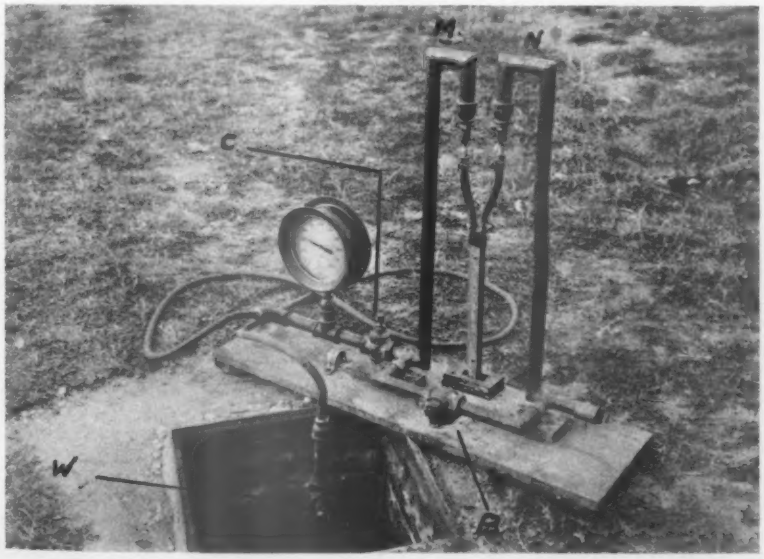


Figure 1. Differential gauge (B—differential cock, C—control cock, W—Riser cock)

Battelle Appointments

BATTELLE Memorial Institute, Columbus, Ohio, announces the appointment of Dimitry Niconoff, J. G. Donaldson and L. H. Berkelhamer to the technical staff. Mr. Niconoff, who was formerly metallurgist for the Phelps-Dodge Corporation, has been assigned to the Division of Process Metallurgy at Battelle. Mr. Donaldson, who comes to Battelle from the Laclede Steel Company, has been assigned to the Chemical Division and Mr. Berkelhamer, who was formerly a Bureau of Mines Fellow at the University of Washington, to the Ceramics Division.

The five largest insurance companies in America hold more than one billion dollars in public utility bonds.

Testing Laboratory

R. M. Conner, Director — Managing Committee: J. S. DeHart, Jr., Chairman — N. T. Sellman, Secretary

New Range and Water Heating Unit Standards Proposed

By H. W. SMITH, JR.
A. G. A. Testing Laboratories

TWO sets of proposed standards covering gas appliances and gas appliance accessories were published in July by the American Gas Association Testing Laboratories, which should be of exceptional interest to gas men. The first of these offers tentative requirements for a completely new type of equipment: namely, attachable gas water heating units without water-carrying parts. The other presents suggested revisions to the latest effective domestic gas range requirements in force since January 1, 1936. Both booklets have been distributed to all member companies of the American Gas Association and to other interested parties for consideration and criticism.

The proposed revisions to the American Standard Approval Requirements for Gas Ranges, Z21.1—1935, touch upon a wide variety of matters and consist of many small refinements which, in the aggregate, materially enhance the significance of the standards. Several new stipulations cover multi-purpose burner valves and top burner and oven burner lighting. Others concern only ranges designed for use with propane or butane-air and meet special requests made by the National Bottled Gas Association and the Compressed Gas Manufacturers' Association. Requirements for automatic devices to prevent escape of unburned gas are appreciably extended. By and large, the changes suggested are designed to keep step with present day trends in range manufacture during a period of rapid improvement and beautification of products.

Essentially, the suggested tentative Listing Requirements for Attachable Gas Water Heating Units without Water-Carrying Parts are identical with the standards now used for the approval of complete storage gas water heaters. They specify that the attachable unit shall be installed according to the manufacturer's instructions upon a standard type boiler or tank of diameter and height corresponding to that for which the unit is designed. The entire assembly is then tested as a storage water heater. It is mandatory that the diameter and shell sheet height of water tanks for which attachable units are designed be specified on the nameplate. Utmost safety and a minimum allowable thermal efficiency similar to that specified for other types of gas water heaters, are required.

When all comments from the industry will have been received on these two "For Criticism Only" publications, the interested subcommittees will meet again and redraft their standards for submittal to the A. S. A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee. Final adoptions will probably be made by the latter official committee at its spring, 1937, meeting.

The completed attachable water heating unit standards will permit, for the first time, American Gas Association certification of equipment offered to a lower income market for converting range boilers and non-automatic water heating equipment to modern, insulated and fully automatic service. So far, few producers have offered such water heater conversion units, but the field seems attractive and new manufacturers are entering the picture.

The completed range revisions will permit the publication of the eighth edition of these most used of all gas appliance standards, and will go into effect January 1, 1938.

Water Heater Tank Capacities Listed in Directory

BY way of expanding the usefulness of the American Gas Association's Directory of Approved Appliances and Listed Accessories, the latest July 1st edition shows, for the first time, the nominal storage vessel capacity in gallons of each A. G. A. approved storage gas water heater. This added information rounds out the essential data given for each certified model of water heating equipment.

For years the Directory has offered the following facts on each approved water heater model: trade name, manufacturer's name and address, model number, type of unit, input rating (in B.t.u. per hour for both natural and manufactured gases), and recovery capacity (in gallons per hour for both types of gas supply). Additional information required to be permanently stamped or marked on the nameplate of the appliance but which heretofore has not been printed with the model's official listing in the Directory, is the nominal gallon capacity of the storage system. Now, however, the Directory listings for water heaters will give all the essential size and identification data offered on the name plate of the unit itself. The tank capacity is indicated as a small exponential figure above and to the right of each model designation, a bold face footnote on each page proclaiming that the exponents signify nominal capacities in gallons.

Over 1,225 models of approved water heating equipment are now continuously listed in the Association's Quarterly Directory, a large percentage of these being storage units affected by the new method of notation.

Complete Revised Standards for Tubing and Fittings

MANUFACTURERS of gas ranges, central heating gas appliances, space heaters, and hair dryers, as well as manufacturers of semi-rigid tubing and fittings, will be interested to learn that revised American Standard Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings have been approved and will go into effect on January 1, 1937. This matter is of considerable importance inasmuch as the approval standards on the basis of which gas ranges, space heaters, boilers, furnaces, and hair dryers will be tested by the American Gas Association Testing Laboratories after the first of next year, all require that any semi-rigid tubing and fittings used in appliance construction be capable of meeting the American Standard Listing Requirements for same as regards both construction and performance.

In the case of gas ranges, the effective printed standards already specify listed semi-rigid tubing and fittings, although special action has provided for a waiver of the performance demands until January 1 when the revised tubing and fittings listing standards become effective.

The tubing and fittings listing requirements to be applied after January 1 are substantially the same as those which were developed some time ago and have been approved as American Standard, though unprinted, for over a year. However, after the American Standards Association approved the first Listing Requirements for Semi-Rigid Gas Appliance Tubing and Fittings in February, 1935, there were raised several points which required disposition before actual tubing testing for listing purposes could begin. These points concerned: (1) The relative acceptability for gas appliance usage of flared, compression, and soldered types of fittings; (2) the degree of agreement between the required fitting dimensions and tolerances and the corresponding S.A.E. dimensions and tolerances; and (3) the

durability and performance of fittings and tubing ends under the strain of connection and reconnection. All three matters were, hence, investigated, and appropriate new and revised clauses proposed by the subcommittee for incorporation in the existing standards. The A.S.A. Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, has now adopted all these recommended revisions, and decreed that the revised requirements shall become effective on January 1 next. Mimeographed copies of the revised standards will, however, shortly be distributed to all interested manufacturers and the Laboratories will be in a position to test tubing and fittings for listing whenever submitted.

Both compression and flared type fittings, but not soldered fittings, will be acceptable; fittings must be S.A.E. standard or equivalent; and in addition to other tests, fittings will be subjected to a tightening, deflecting, releasing, and reconnecting test repeated five times to insure reasonable durability in service.

Copies of the above-mentioned standards may be secured upon application to the American Gas Association Testing Laboratories, 1032 East 62nd St., Cleveland, Ohio.

Household Buying Guide Recognizes A. G. A.

FOR some years government and private agencies have been developing buying guides of various kinds. One of the most recent is a publication of the U. S. Department of Agriculture, "Present Guides for Household Buying," by Ruth O'Brien, chief, Textiles and Clothing Division, and Medora M. Ward, assistant economist, Economics Division, Bureau of Home Economics. This publication contains the following reference to the American Gas Association:

"The American Gas Association owns and operates two gas-appliance testing laboratories. All appliances tested and approved by these are labeled with a symbol known as the "laboratory seal of approval." Permission to use this seal is granted to manufacturers for periods of 1 year only and must be renewed annually. The standards used as a basis for this approval are drawn up by a national committee supervising some 29 working subgroups, each concerned with a different type of gas appliance or accessory. This committee is also a sectional committee of the American Standards Association and includes representatives of trade associations, consumer organizations, government departments, and technical societies. As a result of this contact the great majority of the standards are now American Standards, and application has been made for similar recognition of all the American Gas Association approval requirements.

"Both the standards and methods used in testing the appliances are published for general consumer information. They deal with the construction and performance of the appliance, chiefly as these affect safety. An extensive system of inspection is maintained whereby every approved appliance is inspected at the factory of the manufacturer at least once each year to insure that articles of the same design and construction as the tested sample are being produced. This seal of approval is a guarantee of compliance with the association's standards of safety."

Company Employs Second Laboratories' Engineer

ANNOUNCEMENT is made by the American Gas Association Laboratories that Lawrence Jaros, testing engineer in the space heating section since May, 1934, has been employed by the W. J. Schoenberger Company, gas burner valve manufacturers, of Cleveland, Ohio. He will assist Casper S. Stuckenholt, also a former Laboratories' employee, in the engineering department of the Schoenberger organization.

Mr. Jaros is a graduate of Ohio State University, 1933, and has served with the United States Coast and Geodetic Survey and has had teaching experience. His careful and efficient work at the Laboratories during the past two years have won for him an enviable reputation.

CONVENTION AND EXHIBITION

(Continued from page 298)

bustion Corporation, Tappan Stove Company, Therminsul Corporation, Time-O-Lite Controls Company, Tinnerman Stove & Range Company, Titan Valve & Manufacturing Company, United American Bosch Corporation, United Engineers & Constructors, Inc., U. S. Pipe & Foundry Company, United States Steel Corporation, Utilities Publication Committee, Wailes Dove Hermiston Corporation, Waukesha Motor Company, Weiskittel Company, Incorporated, Harry C., Welbilt Stove Company, Welsbach Company, Western Business Papers, Whitehead Metal Products Company of New York, Wilcolator Company, Wilson Company, W. A., Wood Company, R. D., Wood Manufacturing Company, John, Youngstown Sheet & Tube Company.

RESUSCITATION TRAINING DEVICE

(Continued from page 301)

bodies, one a child. Feeling that the workers' uncertainty of how much pressure they were applying bore directly on this condition, Mr. Langdon immediately began designing an instrument which would overcome this defect and would more definitely standardize a method and technique for first aiders. His object was to design an apparatus which would show the first aider what he was accomplishing as he applied artificial respiration and which would set a standard of measurement for timing, weight pressure, and air volume.

"The task of designing and building a satisfactory device seemed like an endless problem," Langdon says, "but with the able advice and material assistance of friends the job moved on. I am particularly grateful to Dr. Dudley P. Laugenour, of Dallas; Walter J. Garner, superintendent of the Lone Star Gas shop in Dallas, and Ed Doerr, of the Lone Star meter department, for their help and suggestions."

Langdon's first machine was built almost entirely of scraps, including automobile springs, welding rods, a drip pan from an old range, a cracked pressure gauge case, a discarded bell tester, and junked iron for a base. "These parts didn't look very well," Langdon admits with a grin, but at that, they got the job done."

A new, improved machine has just been completed for use of the safety department of Lone Star Gas Company. Patent for the device has been applied for by Mr. Langdon.

Jobs Expanded, House Heating Sales Grow

THE Consolidated Edison Company of New York reports that its retail domestic gas appliance salesmen in the Bronx and Queens, two boroughs of the greater city, are built for bigger and better things—that they can "deliver the goods." On April 1 these salesmen had their jobs expanded to include the sale of all gas appliances going into the home, including gas house heating equipment. In Manhattan house heating equipment sales are still handled by a special house heating and air-conditioning division.

Coincident with the expansion of their jobs, the domestic appliance men found themselves projected into a three-months sales campaign, which soon developed into a spirited contest between the two boroughs as the result of a challenge issued by the Queens group.

The Queens crowd was given a quota of 100 and the Bronx men, because they were nearly double their opponents in number and also had a much larger territory, had their quota set at 150. When the smoke of battle had cleared away and the company had checked and verified the results, the Queens boys were declared the winners with a sales score of 156 per cent, their sales having totaled 156. The Bronx score was 108.7 per cent, their quota of 150 having been topped by 163 sales.

While the Bronx and Queens men were showing what they could do in house heating sales, they found time to chalk up 339 sales of water-heating units.

Personnel Service

SERVICES OFFERED

Gas Engineer (29) desires new connection; graduate M. E., 8 years' experience in manufactured gas; production, transmission, distribution and construction; operation, maintenance, design, planning, testing, reports, studies, budgets, law cases; butane plant construction and operation; licensed stationary engineer and licensed Professional Engineer (N. Y.); completed Rutgers and Columbia extension gas courses. **1007.**

Small **Plant Manager**—energetic, efficient in small water gas plants. Have made change-over coal gas to water gas—water gas to butane; operated butane plant. Understand manufacturing, distribution, high—low pressure; know what it means to maintain friendly public relations. Interested in showing results in operating and sales. **1031.**

Sales Engineer or executive have specialized in the sale and promotion of automatic gas water heaters, gas ranges and other gas appliances for over a period of twenty years. Planned and managed many sales campaigns; extensive acquaintance with utility merchandising managers and plumbing supply jobbers. Willing to travel. **1032.**

Mechanical Engineer, University graduate (36). 12 years' experience in the oil burning industry as service manager, field engineer and installation foreman on domestic and commercial oil burning systems including boilers, radiators and hot water supply systems. Also power plant testing. **1035.**

Junior Statistician: 10 years' experience public utilities. Versed in statistical routine, special reports, unit costs, special studies, preparation of forms in reporting or summarizing balance sheet, operating revenue and operating expense items, graphical presentation of results, reports for trade associations, preparation of data, etc. **1036.**

Accountant. Ten years' general experience; plant and distribution system records maintained and analyzed in accordance with utility and commission requirements. **1038.**

General **Superintendent** or Local **Manager.** Fifteen years' experience in the production of water gas, coal gas, and Pacific Coast oil gas, high and low pressure distribution and transmission, domestic and industrial installation and utilization. Mechanical engineering education; speaks English and Spanish, employed at present. (37). **1040.**

Service Manager, 13 years' natural gas experience, transmission, distribution as construction and maintenance foreman. Domestic, commercial and industrial selling, aiding salesmen to close, advising in heating problems, laying out new systems, renovating and modernizing old systems; specialist in heating, employed. (31). **1041.**

Something available in service. Executive with trained ability in engineering, accounting, commercial and legal **managership;** a background of years of experience in corporation field. Connection with holding company preferred. **1042.**

Meter Shop Superintendent, 9 years' experience in gas meter repairs in charge of meter shops repairing 60,000 meters per year. Thoroughly familiar with modern meter work and manufacture of meter diaphragms. University graduate. Good personality; can effect economies. **1043.**

Manager 24 years' experience in all branches of manufactured coal and water gas. Built and operated plants for sixteen years; with last organization seventeen years every capacity, last eight years as manager property 5,800 meters, showing exceptional results. Have endorsement of city officials and leading business men with fine public relations; married. (44). **1045.**

Writer with practical knowledge of selling a fine organization to its employees and the public. Experience in employee publications, research, surveys and employee relations with large western gas and electric company and two outstanding railroads. Thorough knowledge also of preparing utility advertising and publicity. Exceptional references from executives. **1046.**

Sales Engineer, capable of managing house-heating department in all its branches, covering surveys, installation, estimates, sales promotion, service, repairs and maintenance. Experience also covers industrial field with regard to high and low pressure boilers and large volume water heating. Broad general and technical experience; married. **1047.**

SERVICES OFFERED

Public utility **auditor** and accountant desires to make change. Ten years' experience gas and electric operating and holding companies; good references, familiar with eastern and southern territories. (42). **1048.**

Sales Engineer or supervisor (38) with ten years' experience in the gas industry covering everything in the industrial, domestic, house-heating, commercial, hotel restaurant and refrigeration lines, desires identification with public utility or manufacturer. **1050.**

Engineer experienced (16 years) in the construction of water and coal gas plants and apparatus, including several years supervising installation and repair wet and dry holders, with largest gas plant company in U. S., last four years on valuation work. **1051.**

Twelve years' gas utility experience as superintendent of distribution, service and **sales.** Have produced results at low unit cost. Employed last three years in personnel work; not afraid of hard work or responsibility. Married, good health; (36). **1052.**

Position desired with manufacturer of gas utilization equipment or sales department of gas company by one for many years employed as **salesman,** branch manager and chief executive by large manufacturing company distributing to the heating and plumbing trade. Fully experienced in developing and handling all phases. **1053.**

Man who is willing to begin as a subordinate with gas utility wants position; experience covers manufactured gas, natural gas, and distribution, also public relations. Have worked from the ditch to **superintendent,** have laid out and built gas plant. **1055.**

Topographical draftsman—Experienced in the detail platting and recording of oil and gas field operations, and presenting all such data in graphic form. Also a substantial background in statistical, preparatory surveys, layout and printing proposals. **1056.**

Engineer with 29 years' service with utility company. Familiar with all branches of gas construction specializing in report, estimates, construction and appraisals, also studies relating to assessments and revision of taxes; also electric experience. **1057.**

Accountant-auditor; five years' public accounting experience auditing public utilities and miscellaneous group of trading and manufacturing corporations. Passed two subjects N. Y., C. P. A. One year investment research experience. Knowledge interpretation and sources financial and economic statistics and information. Single. College graduate. Go anywhere in U. S. (35). **1058.**

Advertising—publicity. Six years' newspaper reporter. Four years' advertising and editorial work among both manufactured and natural gas companies, in different sections provide broad knowledge of appliance selling and public relations on rates, franchises, etc. Copywriter, rough layouts and able to handle production detail; graduate. **1059.**

House heating and industrial **sales engineer**—wide experience in gas production and sales—technical graduate—result-getter; can make heating layouts, also air conditioning—strict adherence to sound selling policies—prefer middle west location; available on short notice; married (38). **1060.**

Sales promotion—advertising—publicity. Do you believe sound ideas sell goods; that dramatic layouts compel attention; that convincing copy gets inquiries? Then I have what you want. Let me show you a campaign that doubled factory's production. Four years with leading utility. Know advertising production, printing, engraving, etc. **1061.**

Advertising man with usually successful record in **advertising** and **sales** promotion, backed by actual sales experience. Capable of taking entire charge of advertising operation, or can render invaluable service as assistant to busy commercial manager. **1062.**

Recently graduated gas engineer desires to become connected with a gas company in a **technical** position. Willing to work and cooperate with my fellow workers. **1063.**

SERVICES OFFERED

Director of Research—nineteen years' experience; eight in high and low temperature coal-tar, oil cracking and refining; eleven in space and **house heating.** Outstanding research in heating, conversion and gas designed; also in air conditioning. Desire connection with manufacturer who would like to step out ahead of the rest. **1064.**

Position desired with gas company as **house heating salesman.** Twelve years with large eastern gas company. Selling, surveying and supervision. A-1 record as to ability and character. **1065.**

Heating, cooking appliance **salesman** desires connection with manufacturer. Twenty years' experience selling wholesale and retail trade, and utility companies, in eastern and southern territories. Have ability to organize, create a volume of business and handle any territory to mutual advantage. Have no preference as to territory. **1066.**

Technical graduate desires new connection; six years' experience in plant construction, operation, distribution and appliance servicing; five years' experience in industrial, commercial and heating **sales** with natural and manufactured gas; completed Columbia University extension course in "Manufactured Gas"; married; (33). **1067.**

Young man, good appearance, education and refinement, with full share of health, energy and judgment based on 2½ years' practical pioneering **air-conditioning** experience promoting major manufacturer's equipment in New York City; (33). **1068.**

Gas **technologist engineer** with 12 years' experience in natural and manufactured gas industry as manufacturing and distribution engineer operator and designer of equipment, surveyor and expert in map work desires responsible position. **1069.**

Sales Promotion. Past five years with nationally known manufacturer as field representative in sales promotion department. Utility, dealer and consumer group meetings effectively conducted. Educational work and personal sales calls with salesmen; preparation of sales promotion literature. Acquainted with utilities in New England, New York, New Jersey, Pennsylvania. **1070.**

Inventory-appraisal **engineer** with 20 years' operating, sales and construction experience, offers services in any capacity in the gas business. Experience covers both natural and manufactured gas. Single, college, go anywhere (39). **1071.**

Mechanical engineer, university graduate; 8 years' experience in manufactured gas; transmission, distribution, construction, operation, maintenance, design, planning, testing, reports, studies, budgets, rates and management. Held positions as chief draftsman, cadet engineer, service manager and assistant engineer. Interested in research and air conditioning. Desires position as engineer or manager. Married. (29). **1072.**

Engineer: House heating sales or engineering. Engineer of production, distribution or utilization. Thirteen years' experience in gas industry. Am just the right age, thirty-six, and with enough general experience to make some company a very good employee. **1073.**

Graduate **engineer,** sales and technical experience. At present with large gas utility company selling house heating equipment and other gas appliances. Broad engineering experience with electric and steam power companies. Also purchasing experience for large industrial organizations. **1074.**

POSITIONS OPEN

Gas or **combustion engineer** in designing and manufacturing gas heaters, conversion burners, circulators, or furnaces. Permanent position with opportunity for right party. State full experience, salary wanted. **0312.**

College graduate around thirty years of age with perhaps five years' experience in connection with work of men **servicing customers' appliances** and setting and removing meters. Must be a live wire with good executive ability to supervise work of thirty men doing such work in Middle West city having 80,000 meters. Salary $200 per month. **0315.**

Advisory Council

H. C. ABELL.....New Orleans, La.
JAY BARNES.....New Orleans, La.
HOWARD BRUCE.....Baltimore, Md.
FRANK L. CHASE.....Dallas, Texas
A. S. CORSON.....Philadelphia, Pa.
J. D. CREVELING.....New York, N. Y.
F. C. FREEMAN.....Providence, R. I.
R. W. GALLAGHER.....New York, N. Y.
O. S. HAGERMAN.....Chicago, Ill.
C. A. HARRISON.....Toledo, Ohio
W. H. HODGE.....Chicago, Ill.
SAMUEL INSULL, JR.....Chicago, Ill.
F. B. JONES.....Pittsburgh, Pa.
D. F. KAHN.....Hamilton, Ohio
F. A. LEMKE.....Kalamazoo, Mich.
F. A. MILLER.....Bradford, Pa.
W. F. MILLER.....Chicago, Ill.
E. B. NUTT.....New York, N. Y.
CLIFFORD E. PAIGE.....Brooklyn, N. Y.
I. K. PECK.....Binghamton, N. Y.
A. E. PEIRCE.....Warrenton, Va.
J. A. PERRY.....Swarthmore, Pa.
J. F. QUINN.....Brooklyn, N. Y.
GEO. W. RATCLIFFE.....Pittsburgh, Pa.
J. M. ROBERTS.....Chicago, Ill.
F. M. ROSENKRANS.....Kansas City, Mo.
N. T. SELLMAN.....New York, N. Y.
ARTHUR STOCKSTROM.....St. Louis, Mo.
D. B. STOKES.....Burlington, N. J.
T. J. STRICKLER.....Kansas City, Mo.
J. B. TONKIN.....Pittsburgh, Pa.
F. S. WADE.....Los Angeles, Calif.
T. R. WEYMOUTH.....Pittsburgh, Pa.
E. L. WILDER.....New York, N. Y.

AFFILIATED ASSOCIATIONS

Association of Gas Appliance and Equipment Manufacturers
Pres.—William T. Rasch, American Gas Products Corp., New York, N. Y.
Exec. Sec.—C. W. Berghorn, 60 East 42nd St., New York, N. Y.

Canadian Gas Association
Pres.—W. H. Munro, Ottawa Gas Co., Ottawa, Ont., Canada.
Sec.-Tr.—G. W. Allen, 183 Glengarry Avenue, Toronto.

Empire State Gas and Electric Association
Pres.—E. R. Acker, Central Hudson Gas & Electric Co., Poughkeepsie, N. Y.
Chairman, Gas Section—R. R. Bogie, Kings County Lighting Co., Brooklyn, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.

Illinois Public Utilities Association
Pres.—A. D. Mackie, Central Illinois Light Co., Springfield, Ill.
Sec.—Jack Abbey, 607 Leland Office Bldg., Springfield, Ill.

Indiana Gas Association
Pres.—L. C. Heavner, Northern Indiana Public Service Co., Fort Wayne, Ind.
Sec.-Tr.—P. A. McLeod, New Castle, Ind.

Michigan Gas Association
Pres.—Newell E. Loomis, Detroit City Gas Co., Detroit, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.

Maryland Utilities Association
Pres.—F. A. Alexander, Conowingo Power Co., Elkton, Md.
Sec.—E. J. Hand, Conowingo Power Co., Elkton, Md.

Mid-West Gas Association
Pres.—H. M. Smith, Iowa Public Service Co., Waterloo, Ia.
Sec.-Tr.—Roy B. Searing, Sioux City Gas & Electric Co., Sioux City, Iowa.

Missouri Association of Public Utilities
Pres.—C. E. Michel, Union Electric Light & Power Co., St. Louis, Mo.
Sec.-Tr.—N. R. Beagle, Missouri Power & Light Co., Jefferson City, Mo.
Asst. Sec.—Jesse Blythe, 103 West High St., Jefferson City, Mo.

New England Gas Association
Pres.—F. L. Ball, New England Power Association, Boston, Mass.
Exec. Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

New Jersey Gas Association
Pres.—William S. Potter, Elizabethtown Consolidated Gas Co., Elizabeth, N. J.
Sec.-Tr.—G. B. Webber, Public Service Electric and Gas Co., Newark, N. J.

Ohio Gas and Oil Men's Association
Pres.—Harry F. Moran, Ohio Oil Co., Findlay, Ohio.
Sec.-Tr.—Frank B. Maullar, 811 First National Bank Bldg., Columbus, Ohio.

Oklahoma Utilities Association
Pres.—C. A. Breitung, Southwest Gas Utilities Corp., Ada, Okla.
Acting Sec.—Kate A. Niblack, 625 Biltmore Hotel, Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—James F. Pollard, Seattle Gas Co., Seattle, Wash.
Mang. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—H. N. Squier, Scranton-Spring Brook Water Service Co., Scranton, Pa.
Sec.—Frank W. Lesley, Pennsylvania Gas & Electric Co., York, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—T. B. Gregory, Union Heat & Light Co., Pittsburgh, Pa.
Sec.-Tr.—B. H. Smyers, Jr., 435 Sixth Ave., Pittsburgh, Pa.

Southern Gas Association
Pres.—H. E. Meade, New Orleans Public Service Inc., New Orleans, La.
Sec.-Tr.—S. L. Drumm, New Orleans Public Service Inc., New Orleans, La.

The Public Utilities Association of Virginia
Pres.—T. Justin Moore, Va. Elec. & Power Co., Richmond, Va.

Wisconsin Utilities Association
Pres.—Frank A. Coffin, The Milwaukee Electric Railway & Light Co., Milwaukee, Wis.
Exec. Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

AMERICAN GAS ASSOCIATION, Inc.

HEADQUARTERS, 420 LEXINGTON AVENUE, NEW YORK, N. Y.

OFFICERS AND DIRECTORS

President	L. B. DENNING	Dallas, Texas
Vice-President	HERMAN RUSSELL	Rochester, N. Y.
Vice-President	N. C. McGOWEN	Shreveport, La.
Treasurer	J. F. ROONEY	New York, N. Y.
Managing Director	ALEXANDER FORWARD	New York, N. Y.
Assistant Manager	H. W. HARTMAN	New York, N. Y.
Secretary	KURWIN R. BOYES	New York, N. Y.
Director, Publicity-Advg.	C. W. PERSON	New York, N. Y.
Departmental Vice-Pres.	WM. MOELLER, JR.	Los Angeles, Calif.
Sectional Vice-Pres.	F. L. GRIFFITH	Chicago, Ill.
Sectional Vice-Pres.	C. E. BENNETT	Pittsburgh, Pa.
Sectional Vice-Pres.	CHARLES W. GALE	Knoxville, Tenn.
Sectional Vice-Pres.	JOHN A. FRY	Detroit, Mich.
Sectional Vice-Pres.	F. A. LYDECKER	Newark, N. J.
Chairman, Pub. & Advg. Com.	HENRY OBERMEYER	New York, N. Y.

WALTER C. BECKJORD	Pittsburgh, Pa.	GEORGE S. HAWLEY	Bridgeport, Conn.
CHARLES M. COHN	Baltimore, Md.	C. W. HUNTER	Philadelphia, Pa.
H. C. COOPER	Pittsburgh, Pa.	CONRAD N. LAUER	Philadelphia, Pa.
ADDISON B. DAY	Los Angeles, Calif.	B. J. MULLANEY	Chicago, Ill.
J. S. DeHART, JR.	Newark, N. J.	F. A. NEWTON	New York, N. Y.
B. J. DENMAN	Chicago, Ill.	W. T. RASCH	New York, N. Y.
H. L. DOHERTY	New York, N. Y.	THOS. E. ROACH	Tacoma, Wash.
O. H. FOGG	New York, N. Y.	W. FRANK ROBERTS	Baltimore, Md.
ARTHUR HEWITT	Toronto, Canada	T. J. STRICKLER	Kansas City, Mo.
P. S. YOUNG	Newark, N. J.		

SECTION AND DEPARTMENT OFFICERS

NATURAL GAS—Chairman	WM. MOELLER, JR.	Los Angeles, Calif.
Vice-Chairman	GEORGE E. WELKER	Oil City, Pa.
Secretary	A. E. HIGGINS	Dallas, Texas
ACCOUNTING—Chairman	F. L. GRIFFITH	Chicago, Ill.
Vice-Chairman	E. J. TUCKER	Toronto, Ont., Can.
Secretary	H. W. HARTMAN	New York, N. Y.
COMMERCIAL—Chairman	C. E. BENNETT	Pittsburgh, Pa.
Vice-Chairman	F. M. BANKS	Los Angeles, Calif.
Secretary	J. W. WEST, JR.	New York, N. Y.
INDUSTRIAL GAS—Chairman	CHARLES W. GALE	Knoxville, Tenn.
Vice-Chairman	RALPH L. MANIER	Syracuse, N. Y.
Secretary	EUGENE D. MILENER	New York, N. Y.
MANUFACTURERS—Chairman	JOHN A. FRY	Detroit, Mich.
Vice-Chairman	MERRILL N. DAVIS	Bradford, Pa.
Vice-Chairman	J. SCOTT FOWLER	Philadelphia, Pa.
TECHNICAL—Chairman	F. A. LYDECKER	Newark, N. J.
Vice-Chairman	M. I. MIX	Chicago, Ill.
Secretary	H. W. HARTMAN	New York, N. Y.
PUBLICITY & ADVERTISING COMMITTEE—Chairman	HENRY OBERMEYER	New York, N. Y.

PRINTED IN THE U. S. A.